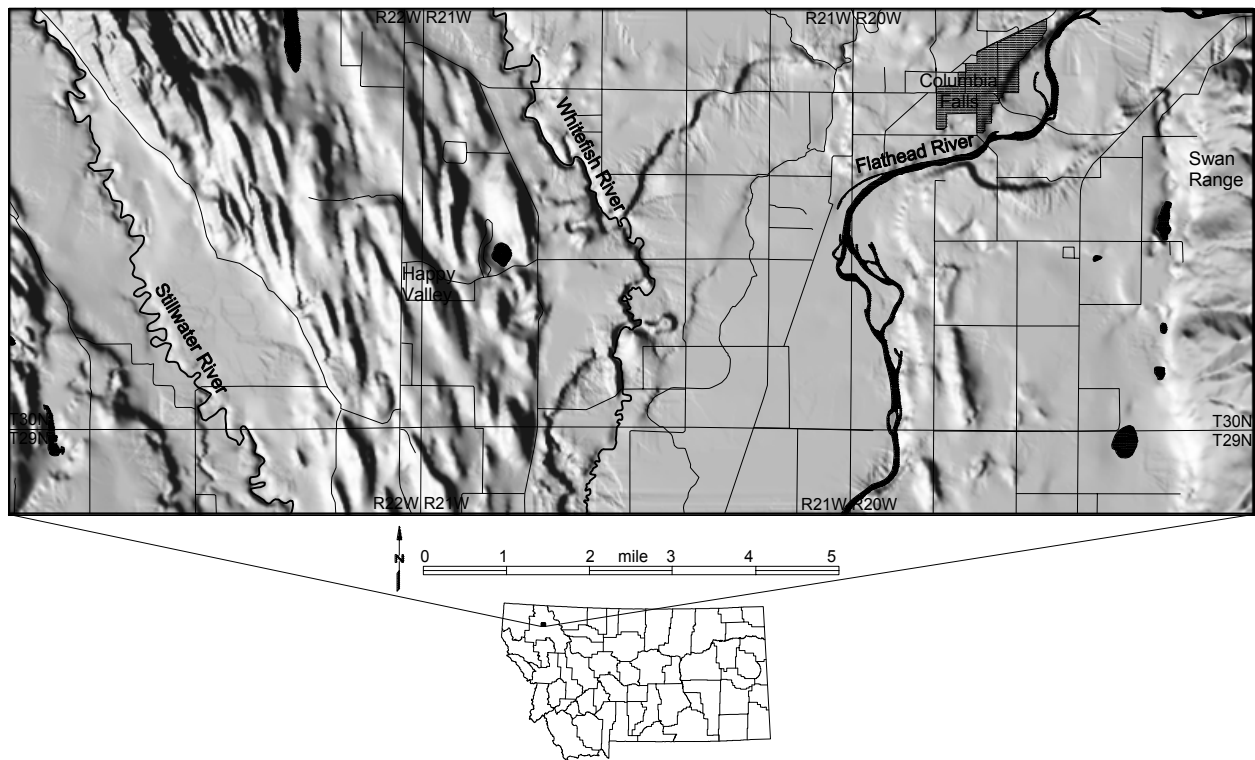


A Reconnaissance Groundwater Investigation in the Upper Flathead River Valley Area



William Uthman, Kirk Waren, and Marshall Corbett

Montana Department of Natural Resources and Conservation

Montana Bureau of Mines and Geology Open-File Report 414
July, 2000



A Reconnaissance Groundwater Investigation in the Upper Flathead River Valley Area

by William Uthman, Kirk Waren, and Marshall Corbett

Montana Department of Natural Resources and Conservation

Montana Bureau of Mines and Geology Open-File Report 414

Helena, Montana
July 2000

CONTENTS

Acknowledgments	iii
Abstract	iv
Introduction	1
Problem	1
Background	1
Project Location	1
Physiography	3
Methodology and Results	3
Project Methodology	3
Well Drilling and Geology	3
Groundwater-Level Monitoring	8
Groundwater Quality	13
Conclusions	15
References	16
Appendices	17
Appendix A1. Inventory of Monitored Wells	17
Appendix A2. Lithologic Description of Surficial Geology of the Upper Flathead Valley ..	18
Appendix A3. Well Lithology Diagrams	21
Appendix B1. Groundwater Hydrographs and Groundwater-Level Data ..	64
Appendix C1. Inventory of Water Quality	129
Appendix C2. Water Quality Analysis Reports ..	131

FIGURES

Figure 1. Location of Project in the Upper Flathead River Valley Area	2
Figure 2. Locations of Monitored Wells	4
Figure 3. Geologic Map of the Upper Flathead River Valley Area	5
Figure 4. Geologic Cross-Section of the Upper Flathead River Valley Area	7
Figure 5. Groundwater Hydrographs of the East Transect Segment	9
Figure 6. Groundwater Hydrographs of the Middle Transect Segment	11
Figure 7. Groundwater Hydrographs of the West Transect Segment	12
Figure 8. Groundwater Quality Stiff Diagrams	14

TABLES

Table 1. Total Monthly Precipitation (inches) at Kalispell-Glacier Park International Airport ..	8
Table 2. Summary of Concentrations of Major Ionic Constituents of Water Samples	15

ACKNOWLEDGMENTS

The reconnaissance groundwater investigation in the upper Flathead River valley area was successful as a result of the cooperation and support of interested citizens of Flathead County, who provided access to their property for project activities. We take this opportunity to express our gratitude. We also acknowledge and thank Judy Jeniker and Rich Russell, of the Montana Department of Natural Resources and Conservation (DNRC) Kalispell Water Resources Regional Office, and Roger Noble, formerly of the DNRC, for their services in collecting field data. Finally, we thank Kurt Hafferman, Chuck Brasen, Mike Roberts, and Bob Smith, of the DNRC; and Larry Smith of the Montana Bureau of Mines and Geology (MBMG), for providing editorial comments on this technical report.

ABSTRACT

A Reconnaissance Groundwater Investigation in the Upper Flathead River Valley Area

William Uthman, Kirk Waren, and Marshall Corbett

The Flathead Valley Groundwater Study provided a reconnaissance-level characterization of groundwater conditions across the upper Flathead River valley area from 1994 to 1997. The study area comprised a 1-mile wide, east-to-west transect extending from the base of the Swan Range about 2 miles south of Columbia Falls, westward to the foothills of the Salish Mountains. Groundwater conditions were characterized by drilling observation wells to describe the geology of the deep aquifer, and monitoring groundwater levels and quality.

Deep subsurface geology was delineated from lithologic descriptions of the installed project wells and other existing well logs along the transect. Surficial geology was examined and described by Smith (2000). Major depositional environments include: floodplain alluvium, glacial outwash, glacial till, and glacial lakebed deposits. The valley floodplain alluvium and glacial outwash constitute the shallow aquifer. The deep valley fill and bedrock beneath glacial till and glacial lakebed sediments comprise the deep aquifer. The glacial till and glacial lakebed deposits of varying thickness form a confining unit that overlies the deep aquifer.

Groundwater levels were monitored in transect wells from June 1994 through December 1997. Hydrographs showed a general rising trend in groundwater levels, that was attributed to above-average precipitation from 1995 through 1997. In addition to the groundwater-level rises, some wells displayed seasonal groundwater-level fluctuations in response to snowmelt, stream stage, and drawdown effects of pumping irrigation wells. Groundwater-level data indicate that groundwater flows from the bedrock of the nearby mountains and recharges the valley-fill aquifer.

Water quality of the deep aquifer was generally good for consumptive and irrigation uses. Concentrations of inorganic chemical constituents fell below maximum concentration limits established by the U.S. Environmental Protection Agency, except for iron and hardness, which exceeded recommended levels in some wells.

INTRODUCTION

Problem

Groundwater development for domestic and irrigation use has increased in the upper Flathead River valley area near Columbia Falls. However, there is a lack of historic groundwater-level data and information regarding interactions between the shallow and deep aquifers. Area residents have expressed their concerns that continuing development may eventually cause groundwater levels in the area's wells to decline, and that increased domestic development may lead to groundwater contamination problems. Because of the potential for these problems to occur, the Montana Department of Natural Resources and Conservation initiated the Flathead Valley Groundwater Study (FVGS) to characterize the hydrogeology of the deep aquifer.

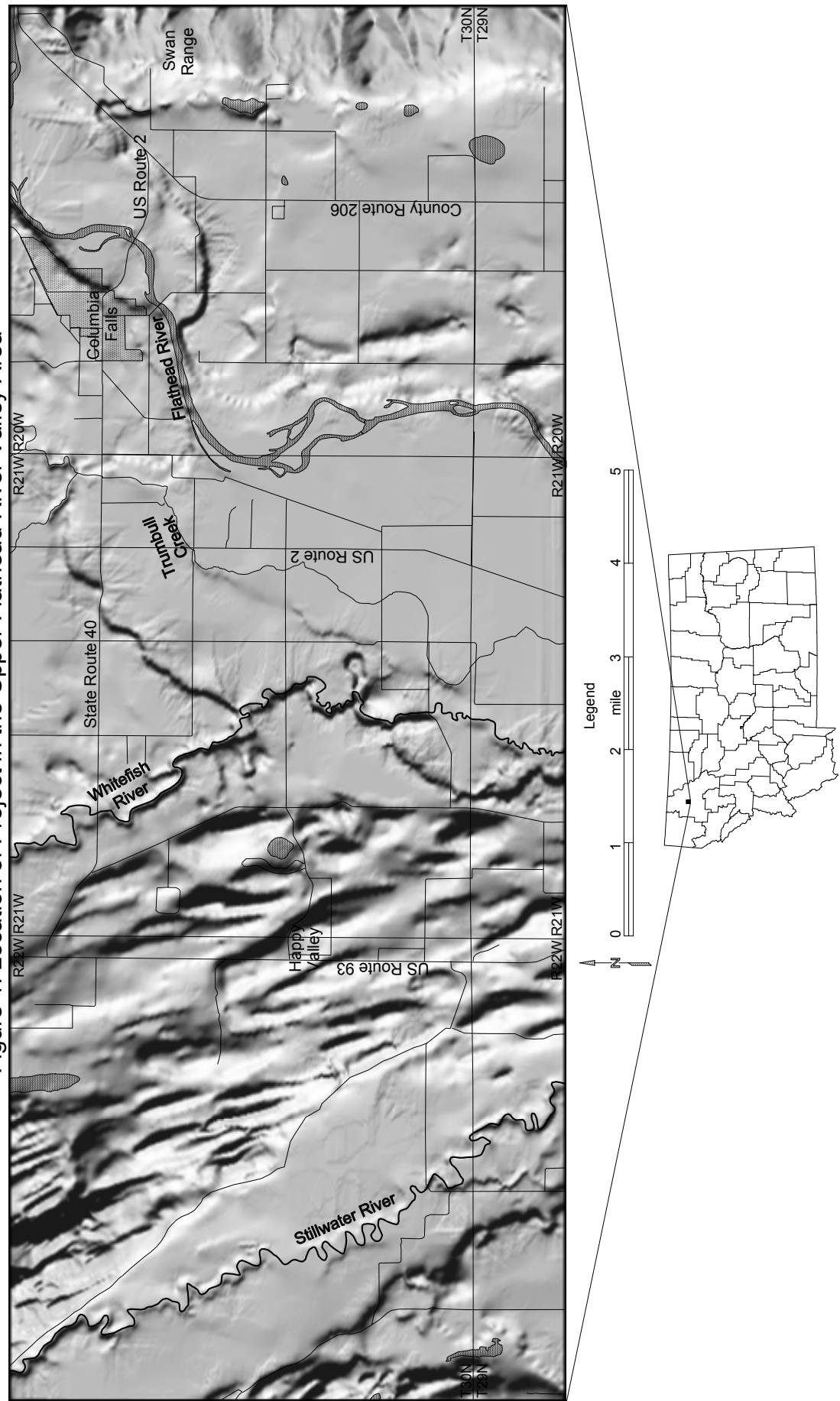
Background

The original application for a grant to fund the FVGS proposed a comprehensive, broad scope of investigation. The FVGS was to be scheduled in three 2-year phases, each associated with a cross-valley location for data collection and groundwater monitoring. The objectives and goals of the initial phase of the project included: 1) development of a groundwater information database of the project area; 2) establishment of a groundwater monitoring network; 3) hydrogeologic characterization to identify and quantify sources of aquifer discharge and recharge, groundwater-surface water interactions, aquifer geometry, aquifer hydraulic properties, and groundwater flow parameters, such as hydraulic gradient, groundwater-flow direction and velocity, and volumetric flux; 4) groundwater-quality sampling, analysis, and assessment of impacts from land development; and 5) a hydrologic computer model for predictive use.

Following the inception of the FVGS and initiation of the first phase of the investigation, several changes forced modifications of the scope of the project. Most significantly, the Montana Bureau of Mines and Geology Groundwater Characterization Program completed its field investigations for the Flathead Lake Groundwater Characterization Study. Although the longer-term FVGS was conceived before the MBMG Characterization Program, the MBMG study fulfilled the need to complete a groundwater characterization of the area. The MBMG Characterization Program study addressed many of the goals of the FVGS and included some data from the FVGS in its groundwater characterization report. The FVGS was completed to characterize the geology of the deep aquifer, and to provide baseline information on groundwater levels and groundwater quality.

Project Location. The project encompasses an area comprised of a group of wells forming a transect approximately 1-mile wide by 15-miles long across the upper Flathead River valley area. The project area extends from the base of the Swan Range about 2 miles south of Columbia Falls, westward to the foothills of the Salish Mountains beyond the Stillwater River valley (Figure 1).

Figure 1. Location of Project in the Upper Flathead River Valley Area



Physiography. The upper Flathead River valley is a large northwest-trending intermontane basin in northwest Montana of about 490 square miles in size (Kendy and Tresch, 1996). The upper Flathead River valley is delineated by the Salish Mountains on the west, by the Whitefish Range on the north, by the Swan Range on the east, and by Flathead Lake on the south. Valley elevations range from about 2,900 feet near Flathead Lake to about 3,200 feet in the Columbia Falls-Whitefish area. Four rivers, the Flathead, Stillwater, Whitefish, and Swan, enter the upper Flathead River valley. Streamflow records are available for the 8 stream-gaging stations operating in the area. The principal topographic features consist of floodplain and associated terraces, and glacial knob-and-kettle topography characteristic of ground moraine from continental glaciation. There are 2 principal aquifers in the area. These include shallow sand and gravel, and deep undifferentiated sand and gravel, and bedrock, beneath non-aquifer materials.

METHODOLOGY AND RESULTS

Project Methodology. The FVGS focused on the establishment of a cross-valley transect of monitoring wells concentrating on the deep aquifer. Field activities consisted of well installation, description of aquifer materials, the monitoring of groundwater levels in these project wells and other nearby existing domestic wells, and collection of groundwater samples for analyses of inorganic chemical constituents. The hydrogeological data collected from this investigation will serve as baseline information for solutions to water availability issues and impacts to water quality created by land development and use of the aquifers as a source of water.

Well Drilling and Geology. To establish the cross-valley transect of monitoring wells, existing well log reports for the upper Flathead River valley area were reviewed. Domestic observation wells were chosen for groundwater-level monitoring, based on depths drilled, access, and their representation of hydrogeologic environments recognized in the area. In addition, 8 dedicated project monitoring wells were drilled along the transect to collect data from the deep aquifer. The locations of the domestic observation wells and drilled project wells are presented in Figure 2, and a well inventory is tabulated in Appendix A1. Well group A was sited to provide data from portions of the deep aquifer not yet extensively developed. Well group B was drilled to provide data for an area of deeper aquifer development. Well C was completed in thick glacial till overlying a thinner section of gravel resting on bedrock. The location of well C corresponds to the western margin of a downfaulted block comprising the main portion of the upper Flathead River valley. Well D was drilled to provide data on bedrock underlying the lakebed sediments in the Stillwater River valley. The original lithology logs for the drilled wells have been archived in the Ground-Water Information Center (GWIC) database at the Montana Bureau of Mines and Geology, Montana Tech of The University of Montana, Butte, Montana.

Geologic depositional environments of the upper Flathead River valley area were mapped by Smith (2000), and the portion of this geologic mapping within the project area is presented in Figure 3. The lithologies of these depositional environments, described by Smith (2000), are presented in Appendix A2. The depositional history of the upper

Figure 2. Locations of Monitored Wells

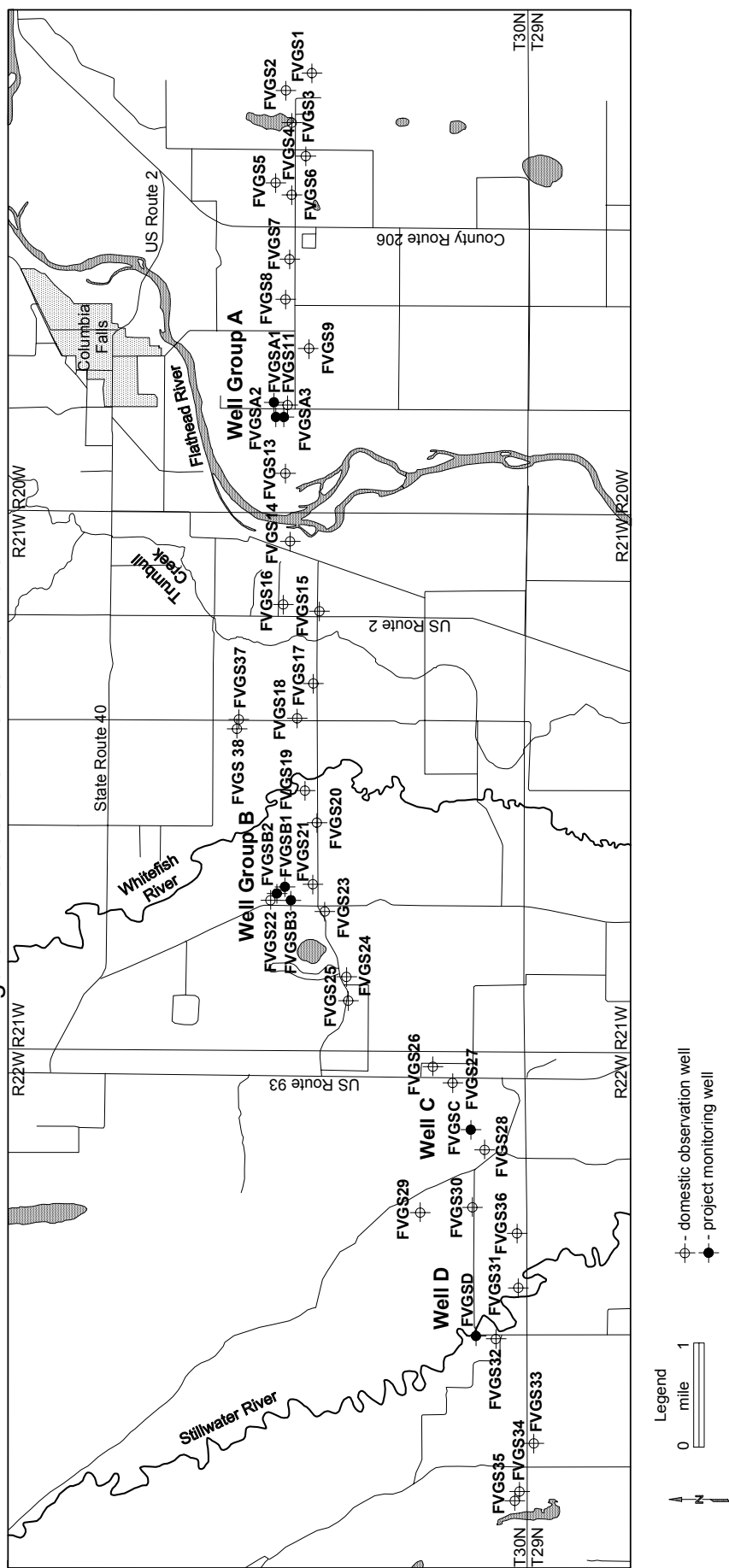
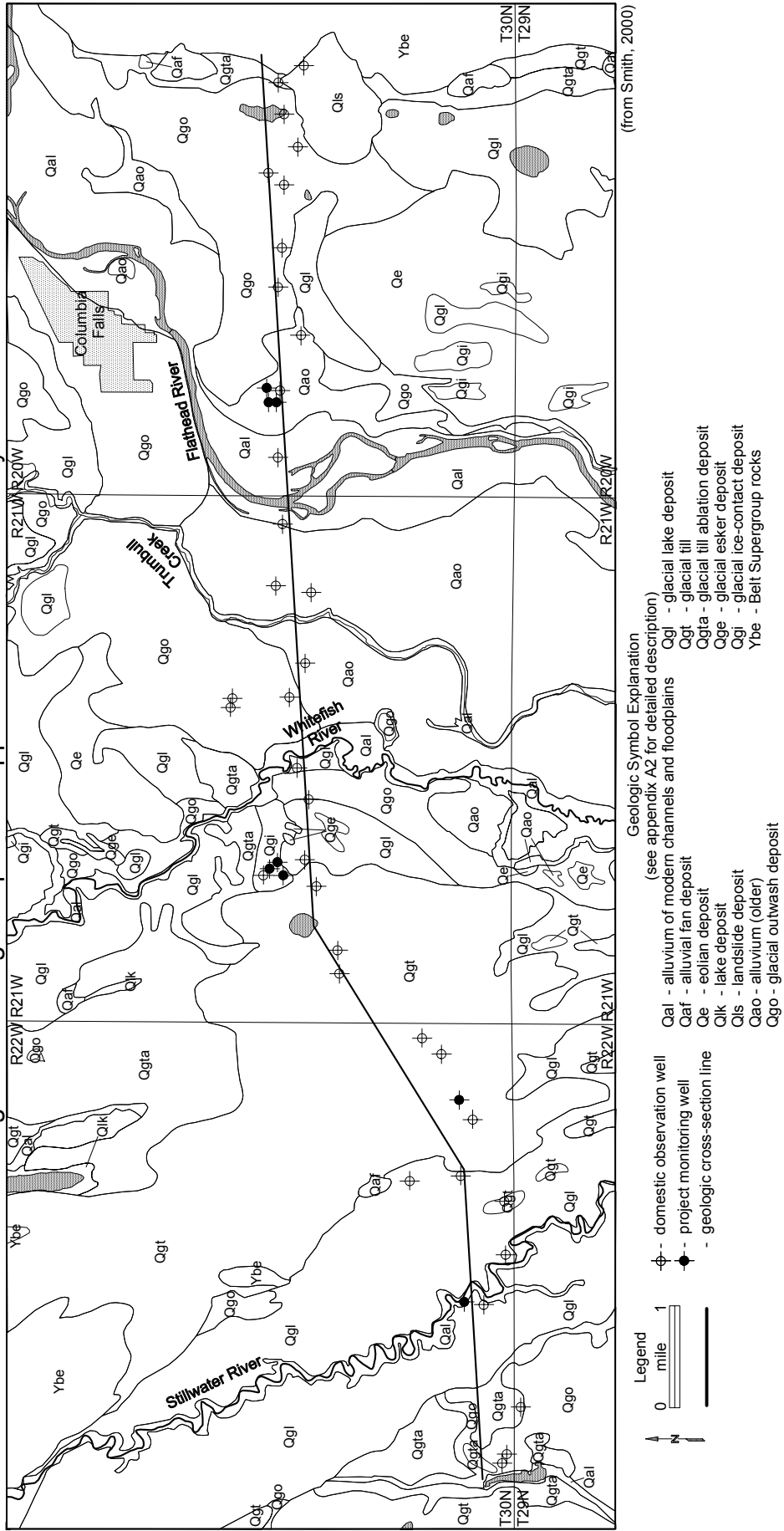


Figure 3. Geologic Map of the Upper Flathead River Valley Area



Flathead River valley area is described by both Konizeski and others (1968) and Smith (2000). Simplified lithology for the domestic and installed project wells is illustrated in Appendix A3. Detailed lithology descriptions may be examined on the original well logs archived in the GWIC database at the Montana Bureau of Mines and Geology. Lithologies were categorized into major depositional environments recognized in the area, including floodplain alluvium, glacial outwash, glacial till, and glacial-lake sediments.

Floodplain alluvium consists of gravel, sand, silt, and clay deposited by running water. Grain size, sorting, and thickness may vary considerably from place to place. Where floodplain alluvium is well sorted and its void space, or porosity, is large, a significant quantity of groundwater may be stored. Hydraulic conductivity, a measure of a material's capability to transmit water, increases in well-sorted sediments. Thus, thick layers of well-sorted floodplain alluvium may yield large quantities of groundwater to wells.

Glacial outwash consists of well-sorted and stratified gravel, sand, and silt. Where glacial outwash is loosely packed and well sorted, its porosity and hydraulic conductivity may be high. A large volume of groundwater may often be stored in glacial outwash, and wells completed in thick deposits of glacial outwash may produce significant quantities of water.

Glacial till is a poorly-sorted mixture of clay, sand, gravel, and boulders deposited directly by a glacier. Groundwater production from till is usually limited because its hydraulic conductivity is low, due to a high silt and clay content. The till may also be cemented. Water in usable quantities can only be produced from till containing lenses of sand and gravel, or having well-developed fractures or joints.

Glacial-lake deposits generally consist of sandy silt and clay, which were deposited from suspension in lakes impounded by glaciers or glacial deposits. Yields of groundwater to wells are typically low, due to the fine-grained nature of these deposits.

A geologic cross-section along the transect was interpreted from lithology described from existing well log reports and the installed project wells. Location of the geologic cross-section is presented in Figure 3, and the geologic cross-section is presented in Figure 4. The geologic cross-section illustrates the downfaulted blocks of the upper Flathead and Stillwater river valleys. The floor of the upper Flathead River valley is delineated by Precambrian bedrock only along its eastern and western margins. Although this bedrock extends across the upper Flathead River valley, it was not encountered during the drilling of the deep wells, and total depth to bedrock cannot be interpolated from the geologic cross-section. Total depth to bedrock in the Stillwater River valley was interpreted on 4 well logs, including that of well D. A thick sequence of undifferentiated Cenozoic valley fill (QTvf), comprised of gravel, sand, silt, clay, and shale, overlies the Precambrian bedrock. Glacial till rests on top of the Cenozoic valley fill and extends across most of the transect. It is thickest in the western half of the transect. Glacial-lake deposits have accumulated in major stream valleys and in depressions in the glacial till once occupied by lakes. Glacial outwash and stream sediments have accumulated in the eastern portion of the transect along the Flathead and Whitefish rivers.

Figure 4. Geologic Cross-Section of the Upper Flathead River Valley Area

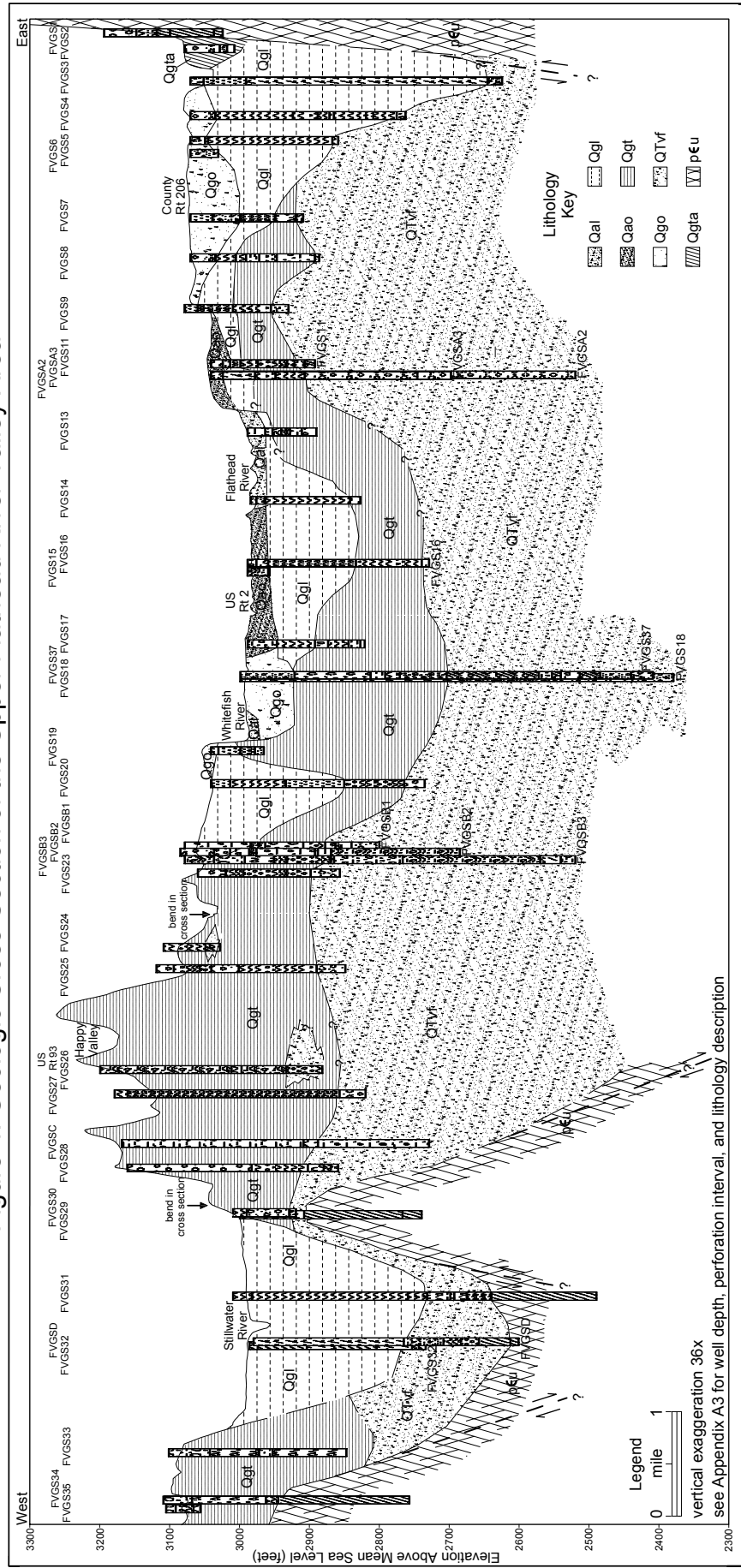
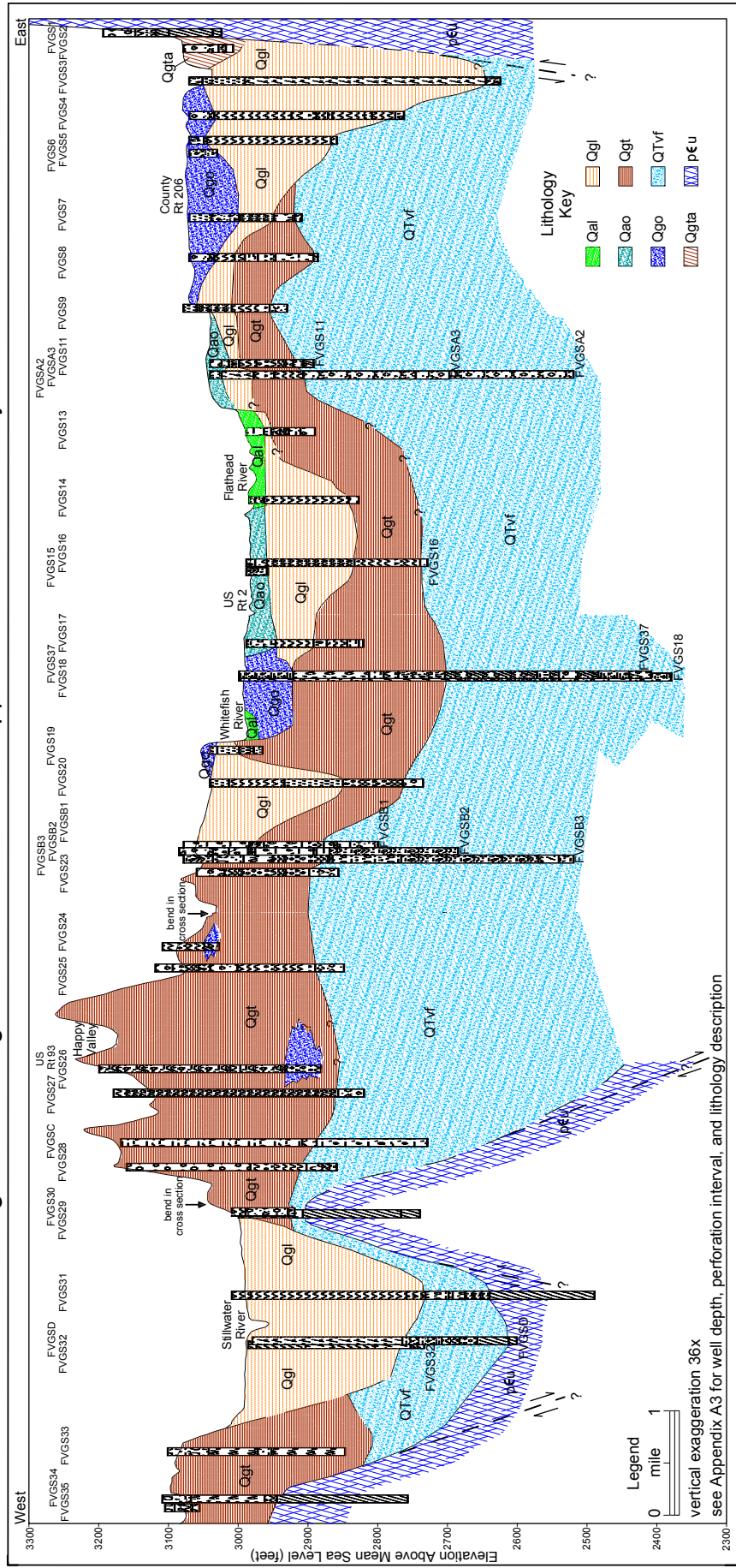


Figure 4. Geologic Cross-Section of the Upper Flathead River Valley Area



Groundwater-Level Monitoring. Groundwater levels were measured in 34 domestic and 8 installed project wells between June 1994 and December 1997. Well locations are presented in Figure 2, and a well inventory is tabulated in Appendix A1. The complete record of groundwater-level measurements collected during the project is presented in Appendix B1 as individual well records consisting of well location description, measurement dates, static groundwater level for each measurement date, measuring point elevation, and a hydrograph of groundwater levels. Individual groundwater hydrographs were constructed by plotting groundwater-level measurements, recorded as depth-to-groundwater from the measuring point on either a 10-, 20-, or 30-foot vertical axis, versus the dates of measurement. Hydrograph groupings are presented for the east, middle, and west segments of the transect in Figures 5 through 7, respectively. All groundwater-level measurements have been archived in the MBMG GWIC database.

Most of the hydrographs show a general trend of rise of groundwater levels from summer 1994, when monitoring began, through 1997, when most monitoring ended. These rises are attributed to above-average precipitation in the area from 1995 through 1997. Table 1 tabulates monthly precipitation, as measured at the Kalispell-Glacier Park International Airport from 1994 through 1997. The average annual precipitation at Kalispell is 16.51 inches, based on measurements made from 1961 to 1990 (National Oceanic and Atmospheric Administration, 1998).

Table 1. Total Monthly Precipitation (inches) at Kalispell-Glacier Park International Airport

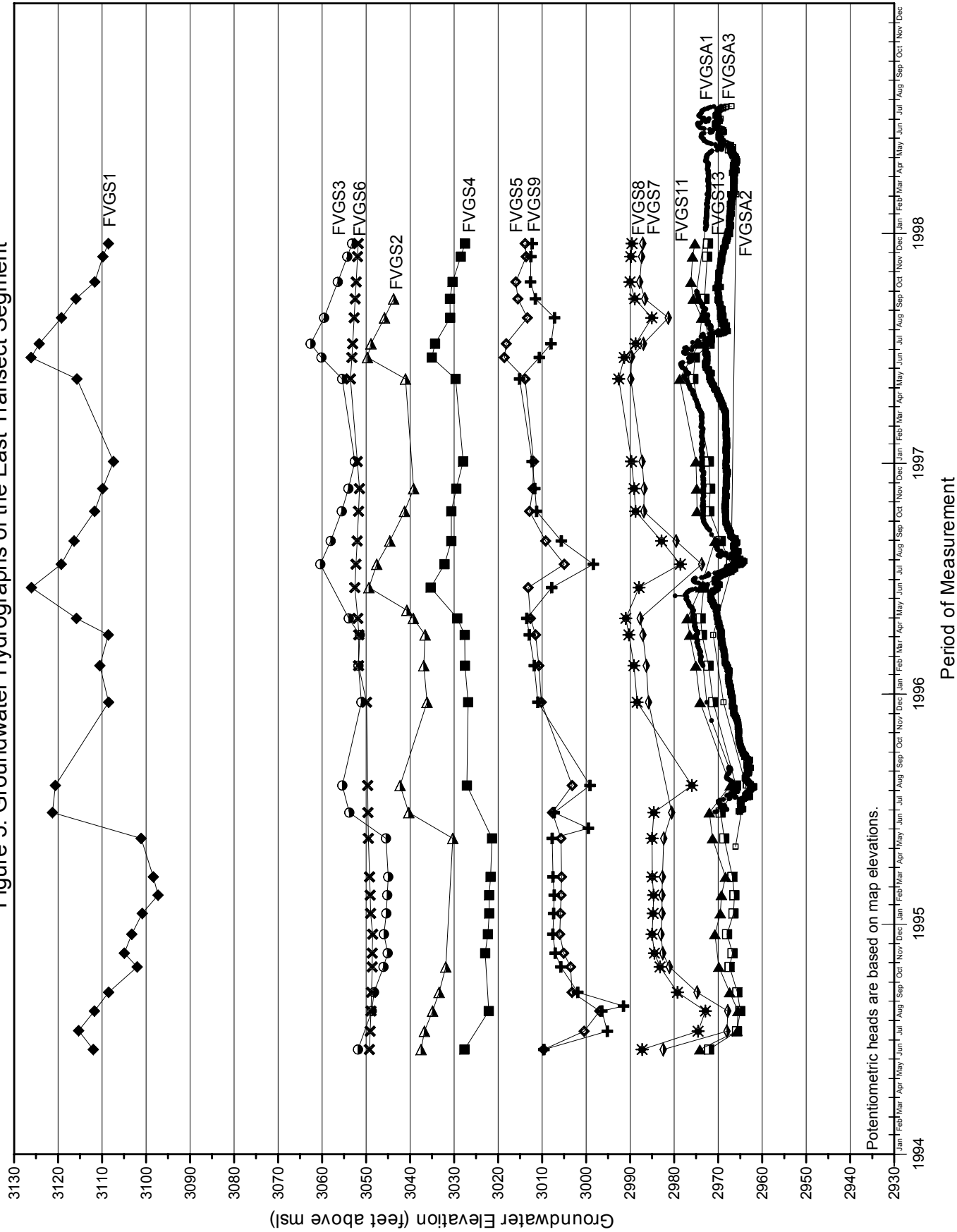
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	annual
1994	1.09	1.38	0.08	1.45	1.55	2.0	0.24	na	na	2.37	1.07	0.91	12.14
1995	1.85	0.80	1.45	1.22	1.05	5.30	1.38	1.26	1.19	2.51	2.79	2.02	22.82
1996	2.59	1.45	1.77	2.34	4.34	1.56	0.70	0.79	1.71	1.48	3.23	3.27	25.23
1997	1.34	1.70	1.87	1.32	2.21	3.44	1.02	1.15	1.50	1.02	0.42	0.57	17.56

In addition to the general rise of groundwater levels, groups of wells displayed seasonal groundwater-level fluctuations related to snowmelt, stream stage, and drawdown effects from pumping wells. The hydrograph groupings illustrate patterns of groundwater-level changes, and compare groundwater levels of nearby wells across the transect.

Along the east segment of the transect, sharp rises of groundwater levels during the early summer are evident on the hydrographs for wells 1 through 4 (Figure 5). These wells are completed in or near the bedrock of the Swan Range, and the groundwater-level spikes reflect the rapid spring and early summer melting of large quantities of mountain snowfall. The groundwater-level rises range in magnitude from about 20 feet in bedrock well 1 to about 6 feet in well 4, which is located approximately 1 mile west of well 1.

There are patterns of groundwater-level decline in several wells when groundwater levels were otherwise generally rising throughout the area. Hydrographs of wells 5, 7, 8, 9, 11, 13, 17, 18, 37, A1, and A2 show groundwater-level declines, ranging from 3 to 15 feet, which occurred from about June through late summer each year. The timing of the declines corresponded to periods of summer irrigation. The declines are attributed to drawdown impacts from large-discharge irrigation wells operating south of Columbia Falls. Following summer irrigation, groundwater levels recovered rapidly to seasonal levels.

Figure 5. Groundwater Hydrographs of the East Transect Segment



Along the east segment of the transect, groundwater levels differed by about 160 feet, ranging from about 2,965 to 3,125 feet above mean sea level. The highest groundwater level of about 3,125 feet was observed in well 1 completed in the mountain bedrock near the east end of the transect. Groundwater generally moves from mountainous areas of high potentiometric head, as observed in well 1, to areas of low potentiometric head, as observed in wells in the Flathead River valley. Between the Flathead River and the mountain front, most hydrograph data indicate an upward vertical hydraulic gradient. At the east edge of the valley, 447-foot deep well 3 had a potentiometric head of about 3,055 feet, whereas shallower wells 4, 5, 6, 7, 8, and 9, had lower potentiometric heads. Comparison of the potentiometric head in the 149-foot deep well 11 with head in the shallower, 101-foot deep well 13 also delineates an upward vertical hydraulic gradient. These upward vertical hydraulic gradients indicate that the alluvium along the Flathead River is a groundwater discharge area for the extensive valley fill and bedrock aquifer. Groundwater discharging to the alluvium flows down-valley, out of the transect area.

Along the middle segment of the transect, hydrographs of wells 15, 16, and 19 exhibited seasonal rises of groundwater levels ranging in magnitude from about 4 to 15 feet (Figure 6). These wells are located near the Flathead and Whitefish rivers. These rises suggest that the aquifer was recharged by infiltrating surface water during spring and early summer when river stage was high. Well 16, however, is completed at a depth of 260 feet in the topmost portion of the deep valley-fill aquifer. This aquifer lies beneath a thick sequence of low-permeability glacial till and lakebed deposits, and therefore, rapid recharge from surface water would not be anticipated.

Along the middle segment of the transect, groundwater levels differed by about 165 feet, ranging from about 2,935 to 3,100 feet above mean sea level. The highest groundwater level of about 3,100 feet was observed in well 24 (shallow) near the west end of the middle transect segment, in the Happy Valley area. The groundwater level in nearby well 25 (deep) was about 2,960 feet. Comparison of groundwater levels in these wells indicates that depth-to-groundwater from land surface increased with increasing well depth, thus defining a downward vertical hydraulic gradient. Comparisons of groundwater levels in wells 16 (shallow) and 18 (deep), and in wells B1 (shallow) and B3 (deep), also indicate downward vertical hydraulic gradients. This information suggests that the topographically high area in the Happy Valley vicinity serves as a local groundwater recharge area.

Along the west segment of the transect, groundwater levels fluctuated gradually, with subtle seasonal changes compared with those observed in the middle and east transect segments (Figure 7). Most of the wells in this area are completed in the deep valley-fill or bedrock aquifer that is overlain by thick glacial-lake or till deposits, isolating the deep aquifer from near-surface events. Groundwater levels in the deep aquifer responded gradually to above-average precipitation, but large seasonal fluctuations related to runoff events or stream stage were absent.

Along the west segment of the transect, groundwater levels differed by about 160 feet, ranging from about 2,925 to 3,085 feet above mean sea level. The highest groundwater

Figure 6. Groundwater Hydrographs of the Middle Transect Segment

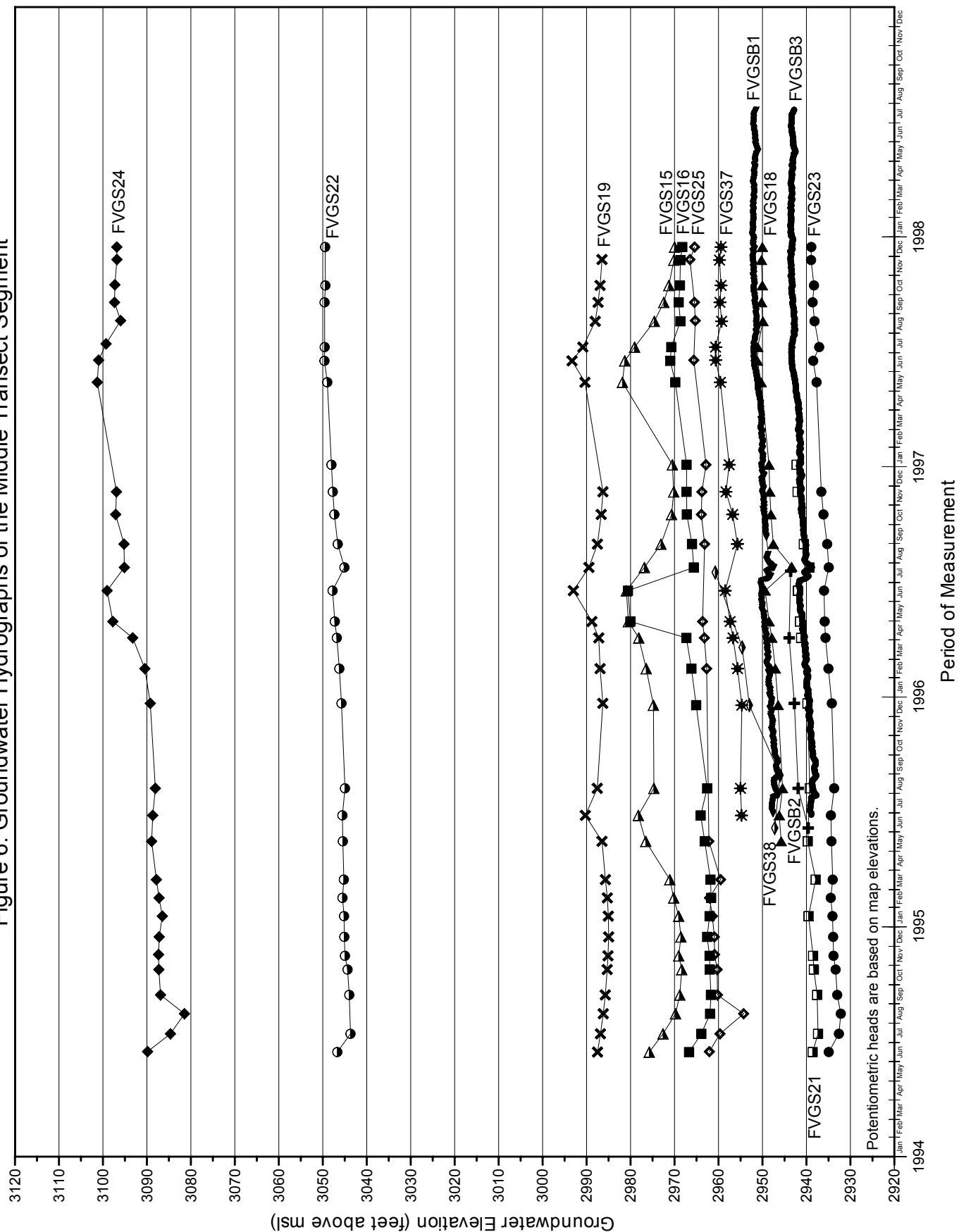
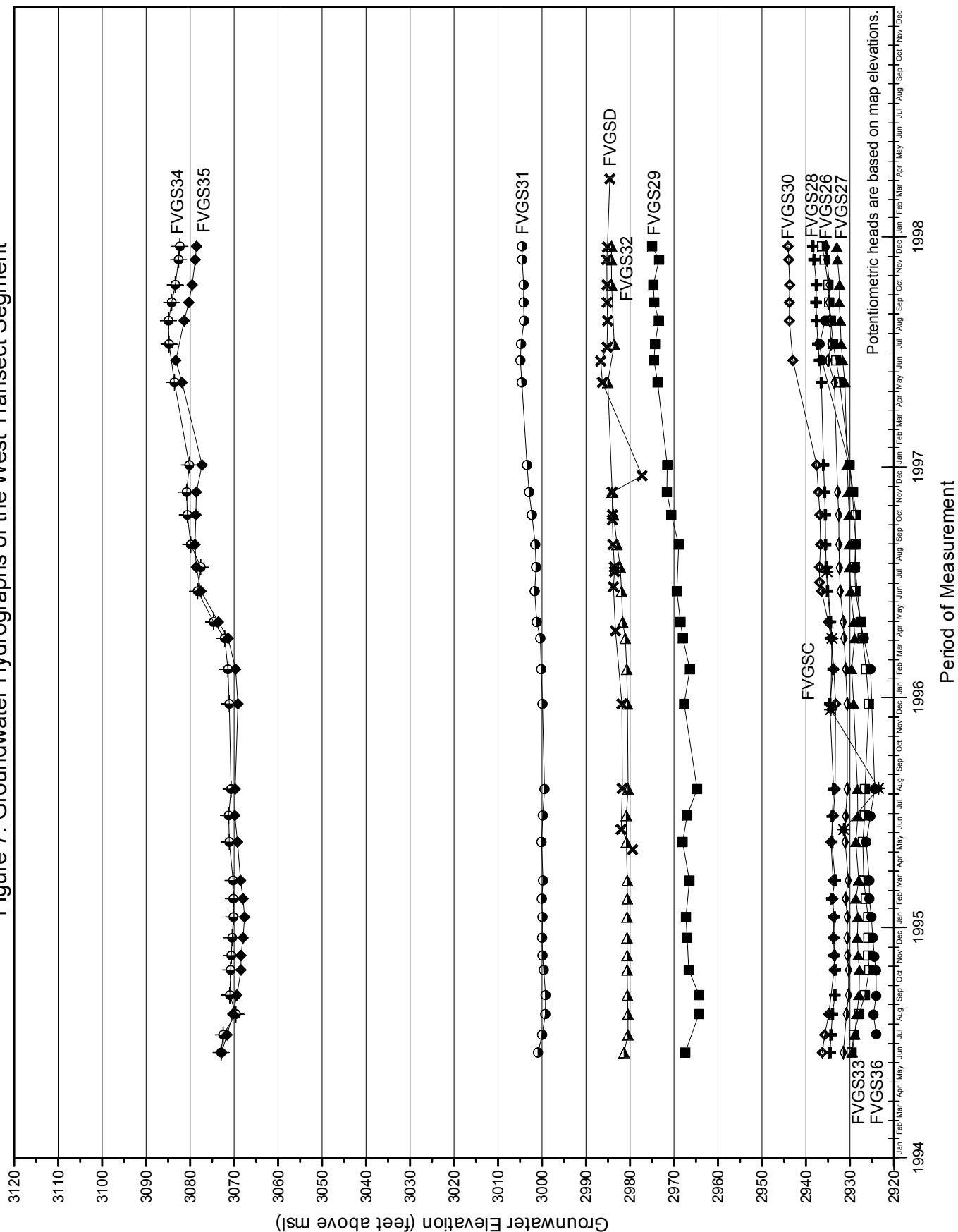


Figure 7. Groundwater Hydrographs of the West Transect Segment



levels were observed in wells 34 and 35 at the west end of the transect segment. The 353-foot deep well 34 is completed in bedrock. High groundwater levels in this bedrock well indicate that there is greater potentiometric pressure in the Salish Mountains than in the adjacent valley. Groundwater levels of 3,075 feet in the 52-foot deep well 35 may be due to perched groundwater in the shallow glacial till in which the well is completed. The 522-foot deep well 31, also completed in bedrock, is the deepest transect well in the Stillwater River valley, but had the highest groundwater levels. Other nearby shallower wells had progressively deeper groundwater levels. These observations suggest that the Salish Mountains are a recharge or source area for groundwater, and that the Stillwater River valley alluvium is a groundwater discharge area for the extensive deep aquifer.

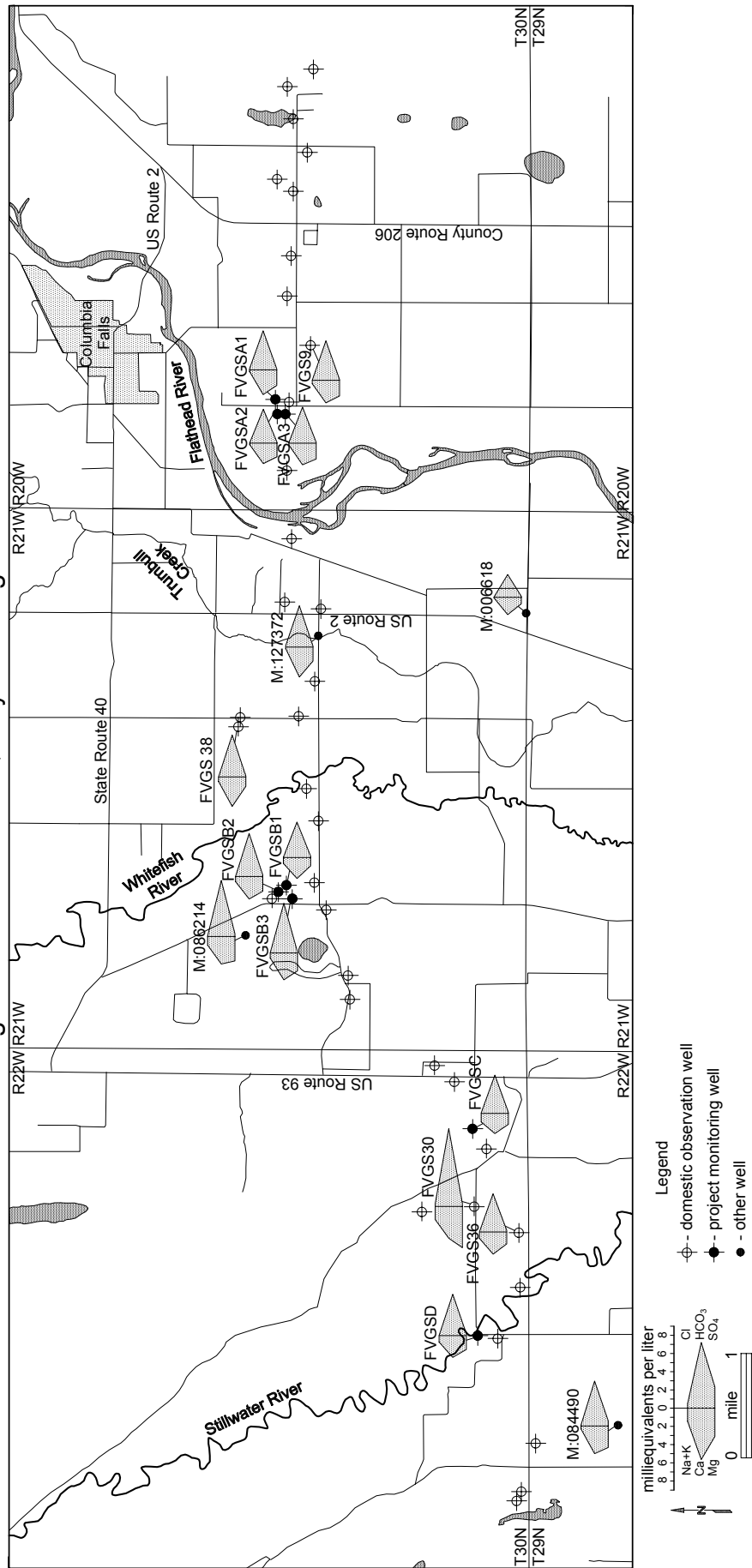
The nature of the cross-valley transect does not permit the plotting of meaningful potentiometric contour maps; or the calculation of horizontal hydraulic gradient, determination of direction and velocity of groundwater flow, and quantification of groundwater in storage or volumetric flux. However, potentiometric maps from Konizeski and others (1968) indicate that groundwater flows into the floodplain materials along the major streams, and then generally south.

Groundwater Quality. Water samples were collected from the project wells completed in the deep aquifer to characterize the groundwater quality. Water samples were analyzed for major, minor, and trace inorganic chemical constituents, and were field tested for pH, specific conductance, and temperature. Organic constituents were not determined. Water quality analyses have been archived in the MBMG GWIC database.

Results of these water-quality analyses, plus additional water-quality analyses available from MBMG, are tabulated as a water-quality inventory in Appendix C1. Water-quality analysis reports are presented in Appendix C2. Concentrations of the major ions and their distribution by well are graphically illustrated as a Stiff diagram map in Figure 8. The major ionic constituents include sodium, potassium, calcium, magnesium, chloride, bicarbonate, and sulfate. Observed concentrations of the major ions were compared with the Environmental Protection Agency (EPA) National Interim Primary and Secondary Drinking Water Regulations for concentration limits. Concentrations of total dissolved solids ranged from about 136 to 464 milligrams per liter (mg/l); the EPA's upper limit is 500 mg/l. Specific conductance ranged from 249 to 778 micromhos per centimeter ($\mu\text{mhos/cm}$); the EPA's maximum permissible level is 1,000 $\mu\text{mhos/cm}$. Hardness ranged in concentration from about 131 to 401 mg/l; the EPA's maximum level is 200 mg/l. Field values of pH fell within EPA's limits of 6.5 to 8.5. However, the EPA concentration limit for iron, 0.3 mg/l, was exceeded or approached in many of the sampled wells.

Elevated concentrations of nitrate, chloride, and phosphorus may indicate impacts from land development. Nitrate concentration ranged from <0.05 to 3.6 mg/l, its mean value was 1.41 mg/l, its median value was 1.22 mg/l, and the EPA's maximum permissible level is 10.0 mg/l. Chloride concentration ranged from <0.5 to 11.0 mg/l, its mean value was 2.35 mg/l, its median value was 1.25 mg/l, and the EPA's maximum permissible level is 250.0 mg/l. Phosphate, as total dissolved phosphorus concentration, was generally <0.2

Figure 8. Groundwater Quality Stiff Diagrams



mg/l. Comparisons of observed concentrations of the ionic constituents with concentration limitations established by the EPA show that the observed concentrations of ions in the groundwater in the deep aquifer beneath the glacial till and lakebed sediments generally fell below the EPA's recommended maximum limits. The observed concentrations of major inorganic ionic constituents are summarized in Table 2.

Table 2. Summary of Concentrations of Major Ionic Constituents of Water Samples

<u>Constituent</u>	<u>Range (mg/l)</u>	<u>Median (mg/l)</u>	<u>EPA Standards (mg/l)</u>
Sodium (Na)	1.4 - 31.3	11.7	2,000.0
Potassium (K)	0.2 - 3.0	1.1	no limit
Calcium (Ca)	38.1 - 70.0	49.6	no limit
Magnesium (Mg)	8.6 - 55.0	19.2	2,000.0
Iron (Fe)	<0.002 - 0.586	0.162	0.3
Chloride (Cl)	<0.5 - 11.0	1.25	250.0
Bicarbonate (HCO ₃)	152.3 - 521.2	271.1	no limit
Sulfate (SO ₄)	4.2 - 27.3	5.0	250.0
Silica (SiO ₂)	5.3 - 18.5	14.0	no limit
Nitrate (NO ₃)	<0.05 - 3.6	1.22	10.0

Results of chemical analyses determined that calcium and bicarbonate were the predominant ions occurring in the groundwater. The groundwater may generally be categorized as a calcium bicarbonate type, except for well 30, which was a magnesium bicarbonate type.

CONCLUSIONS

The Flathead Valley Groundwater Study provided a reconnaissance-level characterization of groundwater conditions across an east-to-west transect in the upper Flathead River valley area. Eight project wells were drilled along this transect. Deep subsurface geology was delineated from lithologic descriptions from the installed project wells and other existing well logs along the transect. Surficial geology was examined and described by Smith (2000). Major depositional environments include: floodplain alluvium, glacial outwash, glacial till, and glacial lakebed deposits. Two of these environments, the valley floodplain and glacial outwash, constitute the shallow aquifer. The deep valley fill and bedrock beneath glacial till and glacial lakebed sediments comprise the deep aquifer.

Groundwater levels were monitored in transect wells from June 1994 through December 1997. Hydrographs showed a general rising trend of groundwater levels from 1995 through 1997, that was attributed to above-average precipitation in the area during this period. In addition to the rise of groundwater levels, certain groups of wells displayed seasonal groundwater-level fluctuations related to snowmelt and stream stage, and declines attributed to drawdown impacts from pumping irrigation wells. Comparison of groundwater levels with well depths across the transect demonstrates that both downward and upward vertical hydraulic gradients occur across the valley. Groundwater infiltrates in higher-elevation source areas and flows downward to discharge in the valleys.

Based on the water-quality parameters analyzed, groundwater quality is generally good for domestic and irrigation uses. However, hardness and iron concentration in many wells either exceed or approach recommended concentration limits, and may cause either scale accumulation or discoloration.

REFERENCES

- Kendy, E., and Tresch, R. E., 1996, Geographic, geologic, and hydrologic summaries of intermontane basins of the northern Rocky Mountains, Montana: U.S. Geological Survey Water-Resources Investigations Report 96-4025, 233 p.
- Konizeski, R. L., Brietkrietz, A., and McMurtrey, R. G., 1968, Geology and ground water resources of the Kalispell Valley, northwestern Montana: Montana Bureau of Mines and Geology Bulletin 68, 42 p.
- National Oceanic and Atmospheric Association, 1998, Climatological Data Annual Summary, Montana 1998, v. 101, no. 13
- Smith, L. N., 2000, Surficial geologic map of the upper Flathead River valley area, Flathead County, northwestern Montana: Montana Bureau of Mines and Geology Groundwater Assessment Open-File Report 15, Scale 1:70,000.

Appendix A1. Inventory of Monitored Wells

Well Name	Site Id#	USGS 7½' Quad Map	Location	Map Elev. at m.p. (feet)	Measuring Pt from Ground Surface (feet)	Well Depth from m.p. (feet)	Perforation Interval (feet)
FVGS1	M:158200	Columbia Falls South	30N 20W 23 CCCA	3196.2	1.2	171.2	84 - 85
FVGS2	M:085703	Columbia Falls South	30N 20W 23 CBCB	3077.0	-3.0	68	67 - 70
FVGS3	M:085693	Columbia Falls South	30N 20W 22 DBDD	3071.8	1.8	446.8	open bottom
FVGS4	M:085689	Columbia Falls South	30N 20W 22 CDAC	3071.8	1.8	309.8	open bottom
FVGS5	M:122756	Columbia Falls South	30N 20W 22 CBAC	3071.9	1.9	211.9	open bottom
FVGS6	M:085669	Columbia Falls South	30N 20W 22 CBCC	3071.9	1.9	41.9	open bottom
FVGS7	M:085649	Columbia Falls South	30N 20W 21 CADC	3071.3	1.3	161.3	open bottom
FVGS8	M:085652	Columbia Falls South	30N 20W 21 CBCB	3072.2	2.2	185.2	open bottom
FVGS9	M:085628	Columbia Falls South	30N 20W 20 DCCA	3081.5	1.5	150.5	open bottom
FVGS11	M:139648	Columbia Falls South	30N 20W 20 CBCB	3041.4	1.4	149.4	open bottom
FVGS13	M:085605	Columbia Falls South	30N 20W 19 CACA	2991.3	1.3	101.3	open bottom
FVGS14	M:086294	Columbia Falls South	30N 21W 24 DBDC	2985.0	0.0	158	open bottom
FVGS15	M:133133	Columbia Falls South	30N 21W 24 CCCC	2992.0	2.0	32	open bottom
FVGS16	M:158201	Columbia Falls South	30N 21W 24 CBCA	2990.6	0.6	260.6	open bottom
FVGS17	M:086238	Rose Crossing, Mont	30N 21W 23 CDCD	2992.2	2.2	171.2	open bottom
FVGS18	M:153005	Rose Crossing, Mont	30N 21W 23 CCB B	3002.1	2.1	623.1	464-524, 562-606
FVGS19	M:086220	Rose Crossing, Mont	30N 21W 22 CDAC	3041.1	1.1	76.1	open bottom
FVGS20	M:127371	Rose Crossing, Mont	30N 21W 22 CCCC	3040.0	0.0	304	285 - 295
FVGS21	M:086211	Rose Crossing, Mont	30N 21W 21 CADC	3055.8	0.8	402.8	open bottom
FVGS22	M:086209	Rose Crossing, Mont	30N 21W 21 CAB B	3192.0	2.0	260.0	open bottom
FVGS23	M:128802	Rose Crossing, Mont	30N 21W 21 CCDD	3061.5	1.5	203.5	open bottom
FVGS24	M:086334	Rose Crossing, Mont	30N 21W 29 ACBB	3111.5	1.5	81.5	64 - 79
FVGS25	M:143177	Rose Crossing, Mont	30N 21W 29 BDBB	3122.3	2.3	271.3	open bottom
FVGS26	M:158202	Rose Crossing, Mont	30N 22W 36 AABD	3201.6	1.6	319.6	open bottom
FVGS27	M:086659	Rose Crossing, Mont	30N 22W 36 ACAB	3182.0	2.0	362.0	340 - 359
FVGS28	M:141701	Rose Crossing, Mont	30N 22W 36 CBDB	3161.6	1.6	301.6	open bottom
FVGS29	M:086604	Rose Crossing, Mont	30N 22W 26 CDDC	3001.7	1.7	261.7	open bottom
FVGS30	M:086652	Rose Crossing, Mont	30N 22W 35 BDDD	3010.3	0.3	90.3	open bottom
FVGS31	M:086648	Rhodes, Mont	30N 22W 34 DCDA	3012.2	2.2	522.2	open bottom
FVGS32	M:086644	Rhodes, Mont	30N 22W 34 CBDD	2985.4	0.4	250.4	246 - 250
FVGS33	M:084489	Rhodes, Mont	29N 22W 04 BBAD	3102.1	2.1	254.1	open bottom
FVGS34	M:086639	Rhodes, Mont	30N 22W 32 DDCB	3111.4	1.4	353.4	332 - 352
FVGS35	M:086641	Rhodes, Mont	30N 22W 32 DCDA	3107.1	2.1	52.1	open bottom
FVGS36	M:120908	Rose Crossing, Mont	30N 22W 35 CCDA	3065.5	0.5	430.5	418 - 428
FVGS37	M:153004	Rose Crossing, Mont	30N 21W 23 BBCC	3001.6	1.6	593.6	514 - 590
FVGS38	M:149142	Rose Crossing, Mont	30N 21W 22 AADC	2995.0	-5.0	260.0	open bottom
FVGS A1	M:148187	Columbia Falls South	30N 20W 20 CBBB	3039.68 *	2.4	159.4	151 - 155
FVGS A2	M:148188	Columbia Falls South	30N 20W 19 DAAB	3041.33 *	2.5	520.5	511 - 516
FVGS A3	M:148189	Columbia Falls South	30N 20W 19 DAAC	3039.83 *	2.6	345.6	open bottom
FVGS B1	M:148190	Rose Crossing, Mont	30N 21W 21 CAAC	3082.4	2.4	279.9	274 - 276
FVGS B2	M:148191	Rose Crossing, Mont	30N 21W 21 CABD	3072.70 *	2.7	399.7	open bottom
FVGS B3	M:148192	Rose Crossing, Mont	30N 21W 21 CACA	3083.1	3.1	560.1	551 - 555
FVGS C	M:148193	Rose Crossing, Mont	30N 22W 36 BDCC	3172.2	2.2	439.2	open bottom
FVGS D	M:148194	Rhodes, Mont	30N 22W 34 CBAA	2984.0	3.0	380.0	open bottom

* denotes surveyed elevation

Appendix A2. Lithologic Description of Surficial Geology of the Upper Flathead River Valley (from Smith, 2000)

Qal: Alluvium of Modern Channels and Floodplains (Holocene) - Light to medium brown and grayish brown sand, silt, and lesser amounts of pebbles, cobbles, and clay along active stream valleys and areas of sheetwash; contains minor amount of colluvium along the bases of steep slopes; thicknesses average 30 feet, but reach 90 feet in paleochannels along the Flathead River south and southeast of Kalispell; ground water commonly at shallow depths; produces significant water quantities.

Qaf: Alluvial Fan Deposit (Holocene) - Grayish brown and light to dark yellowish brown sand, silt, and pebbles, cobbles, and boulders deposited in fan-shaped landforms downslope from canyon mouths; thicknesses range from 1 to 60 feet; ground water commonly at shallow depths; locally produces water.

Qe: Eolian Deposit (Holocene) - Dark to light yellowish brown fine and very fine-grained well sorted sand deposited as eolian dunes and sand sheets; grains mostly of quartz and argillic and calcareous rock fragments; pebble-sized clasts of argillite, quartzite, and weakly consolidated siltstone occur as rare particles in deposits and locally as lags on or near the ground surface; a distinctive bed of white to very pale orange volcanic ash occurs within or near the base of the unit; bedding is massive where the unit is thin, but wind-ripple cross-laminations and large-scale sandflow cross stratification are common in thicker deposits; deposit is truncated near stream courses by alluvium; soils occur at the surface and buried within the deposit; dune forms are poorly preserved due to modification during stabilization and post-depositional erosion; thickness range from 1 to 40 feet; water table is typically below the unit, but the unit may be saturated during seasonal periods of shallow ground water; not known to produce significant water quantities.

Qlk: Lake Deposit (Holocene) - Mostly calcareous silt, clay, and organic debris deposited in perennial and ephemeral lakes; includes minor amounts of sand and gravel; distribution of unit inferred beneath lakes and marshes; thickness unknown, but likely 1-30 feet; ground water commonly near surface or at shallow depths; not known to produce water.

Qls: Landslide Deposit (Holocene and upper Pleistocene) - Boulders, cobbles, and pebbles in a light to dark brown matrix of sand and silt; clasts are mostly angular and subangular; deposited by gravity sliding to an area near the base of a hill or mountain slope; surface of unit is typically hummocky and lobate in form; thickness range from 1 to 80 feet; ground water commonly at shallow depths and the; locally produces water.

Qao: Alluvium, Older (Holocene) - Light to dark brown and grayish brown sand, pebbles, cobbles, and minor silt and clay; upper surface forms terraces near major stream valleys; topographic position intermediate between active stream valleys and areas of outwash deposition; thickness ranges from 1 to 40 feet; ground water commonly at shallow depths; produces significant water quantities.

Qgo: Glacial Outwash Deposit (upper Pleistocene) - Light brownish gray and light to dark brown stratified gravel, sand, and silt; clasts of calcareous siltite, quartzite, intrusive igneous rocks, sandstone, and siltstone; well stratified, channelized, and cross stratified with lenticular beds of imbricated cobbles and pebbles; upper surface is broad and even with local closed depressions and abandoned glacio-fluvial channels; thickness averages 50 feet and is locally more than 140 feet; ground water commonly at shallow depths; produces significant water quantities.

Qgl: Glacial Lake Deposit (upper Pleistocene) - Light yellowish brown, pale brown, and light brownish gray, calcareous fine sandy silt, clayey silt, and minor clay; thin to medium laminations rhythmically alternate between darker-colored clay-rich laminae and lighter-colored and thicker silty and sandy laminae; deposit has broad, even surfaces except for few closed depressions; deposited from suspension in pro-glacial lakes formed behind glacial moraines; thicknesses average 100 feet and are locally greater than 270 feet; typically water-saturated, but not productive to water wells.

Qgt: Glacial Till (upper Pleistocene) - Granules, pebbles, cobbles, and boulders supported by a matrix of light gray, light brownish gray, pale yellowish brown, grayish orange, and pale brown, compact sandy or silty loam (diamicton) deposited by active glacial ice; unit contains minor amounts of stratified drift deposited by water and areas where diamicton has been reworked by alluvial and colluvial processes; clast lithologies include light and medium bluish gray metacarbonate, white weathered metacarbonate, fine-grained quartzite, argillite, diorite, and distinctive cobbles of dark gray to black basalt with amygdule-filling white quartz that contain many fluid inclusions, apparently derived from the Purcell Lava of the Belt Supergroup, a unit that crops out in Glacier National Park and the Whitefish Range to about 10 miles north of Columbia Falls; clasts typically rounded and subrounded; more resistant clasts are commonly striated; crests of glacial landforms in the unit include drumlins and moraines; unit occurs as a veneer over Belt Supergroup rocks in much of the mountainous areas; glaciofluvial channels cut across the unit and some of the drumlins and moraines; thicknesses average 90 feet and are locally more than 250 feet; typically water-saturated, but not productive to water wells except in bodies of stratified drift.

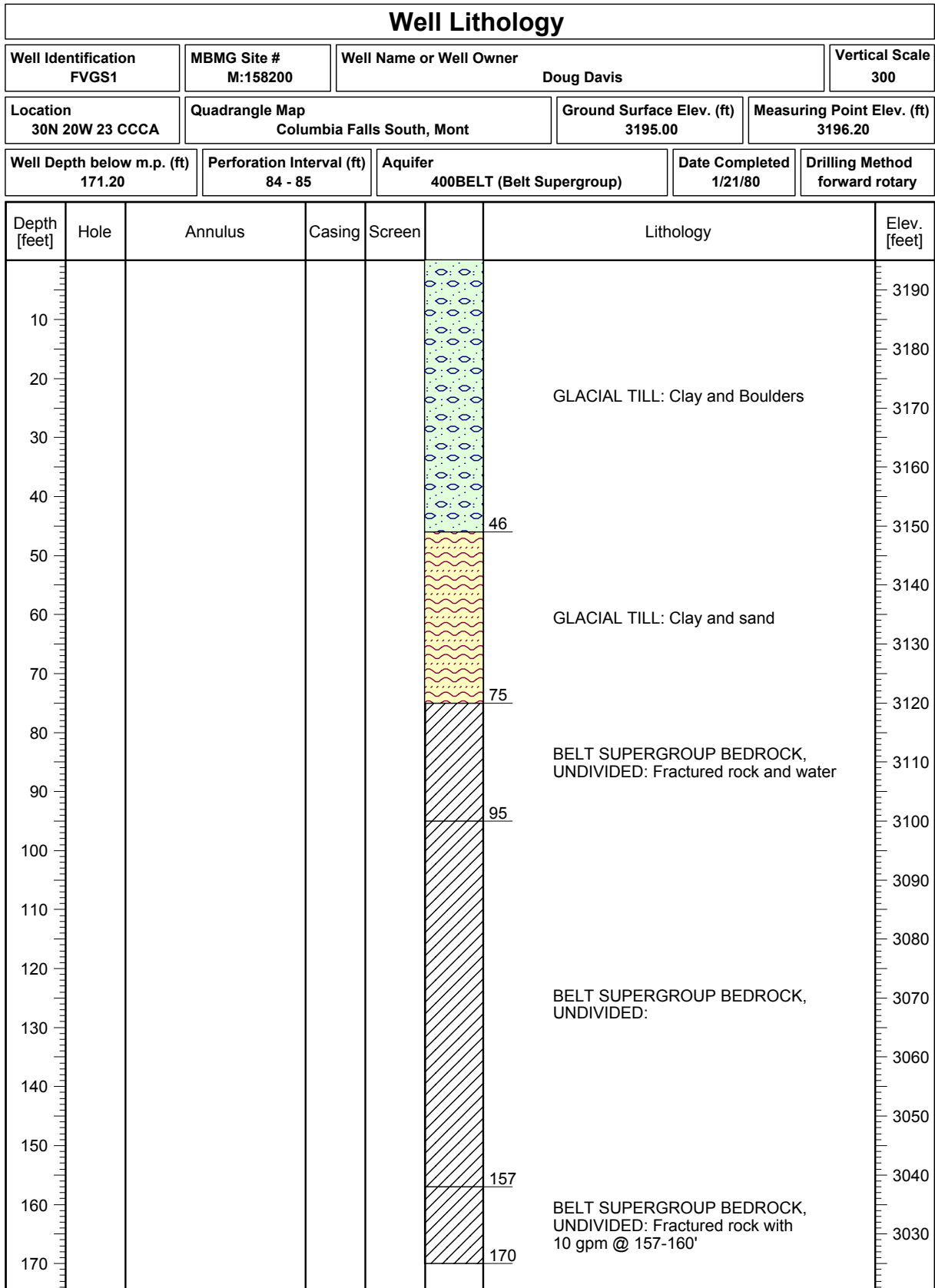
Qgta: Glacial Till, Ablation Deposit (upper Pleistocene) - Granule, pebble, and cobble conglomerate, and lesser amounts of light gray, light brownish gray, pale yellowish brown, grayish orange, and pale brown, compact beds of diamicton and stratified beds of sand; interstratified complex of massive glacial till, poorly bedded ice-contact deposits, and well-stratified drift; formed during disintegration of glacial ice; characterized by knob and kettle topography with some elongated crests of glacial landforms representing crevasse-fills, eskers, and kames; thicknesses range from 1 to 150 feet; although lateral and vertical variations in lithology affect potential for groundwater development, typically productive to water wells in most locations.

Qge: Glacial Esker Deposit (upper Pleistocene) - Pebbles, cobbles, boulders, and some light to medium brown sand; most clasts are well rounded cobbles; some exposures display horizontal bedding; clasts of grayish black to medium dark gray metacarbonate, argillite, light gray and medium gray bedded quartzite, weathered calcareous mudstone, and distinctive cobbles of dark gray to black basalt (Purcell Lava); forms narrow, sinuous ridges; thicknesses range from 1 to 60 feet; ground water levels typically below the unit, but the unit may be saturated during seasonal periods of shallow ground water; the unit is not known to produce significant water quantities.

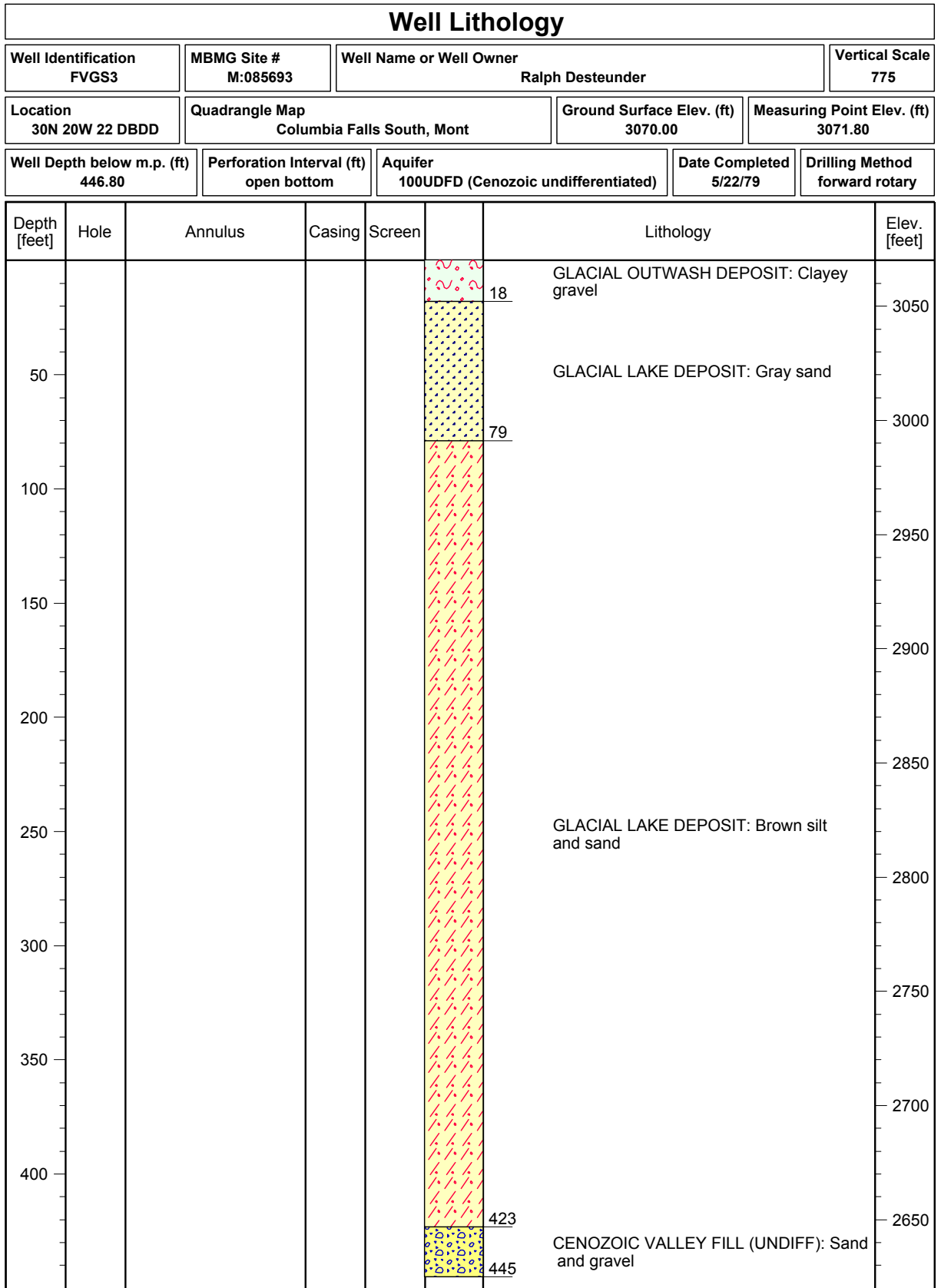
Qgi: Glacial Ice-Contact Deposit (upper Pleistocene) - Light to dark brown and brownish gray pebble and cobble conglomerate with lesser amounts of laminated silt and clay, bedded sand, diamicton, and boulder conglomerate; clast lithologies dominated by rounded and subrounded argillite, metacarbonate, and quartzite with minor siltstone, sandstone, fossiliferous limestone, and distinctive cobbles of dark gray to black basalt (Purcell Lava); lithologies superimpose and cross-cut each other in complex sequences; soft- and frozen-sediment rotational and collapse features are common; conglomerates display large and very large-scale tabular and trough cross-stratification, crude horizontal stratification in a matrix of granules and coarse-grained sand, and clast imbrication; laminated silt and clay sequences are mostly less than a few feet thick and discontinuous in outcrop; sand occurs in cross-stratified, upward-fining beds, and as apparently massive, well-sorted beds with intercalated silt and clay laminae that show collapse structures; diamictons are typically less than a few feet thick and occur as sheet-like bodies and dipping beds apparently deposited by debris flows; forms individual conical and stream-lined hills (kames), flat-topped ridges (kame terraces), and linear deposits (crevasse-fills), and hummocky topography; changing proportions of lithologies causes unit to grade into areas mapped as glacial till, ablation deposits, and glacial esker deposits; thicknesses range from 1 to 150 feet; although lateral and vertical variations in lithology affect potential for ground-water development in the unit, typically productive to water wells in most locations.

Ybe: Belt Supergroup Rocks, Undivided (Precambrian Y) - Numerous stratigraphic units composed mostly of siltites, metacarbonates, and quartzites and minor amounts of igneous rocks; water wells completed in fractured zones yield adequate supplies of water for household use.

Appendix A3. Well Lithology Diagrams



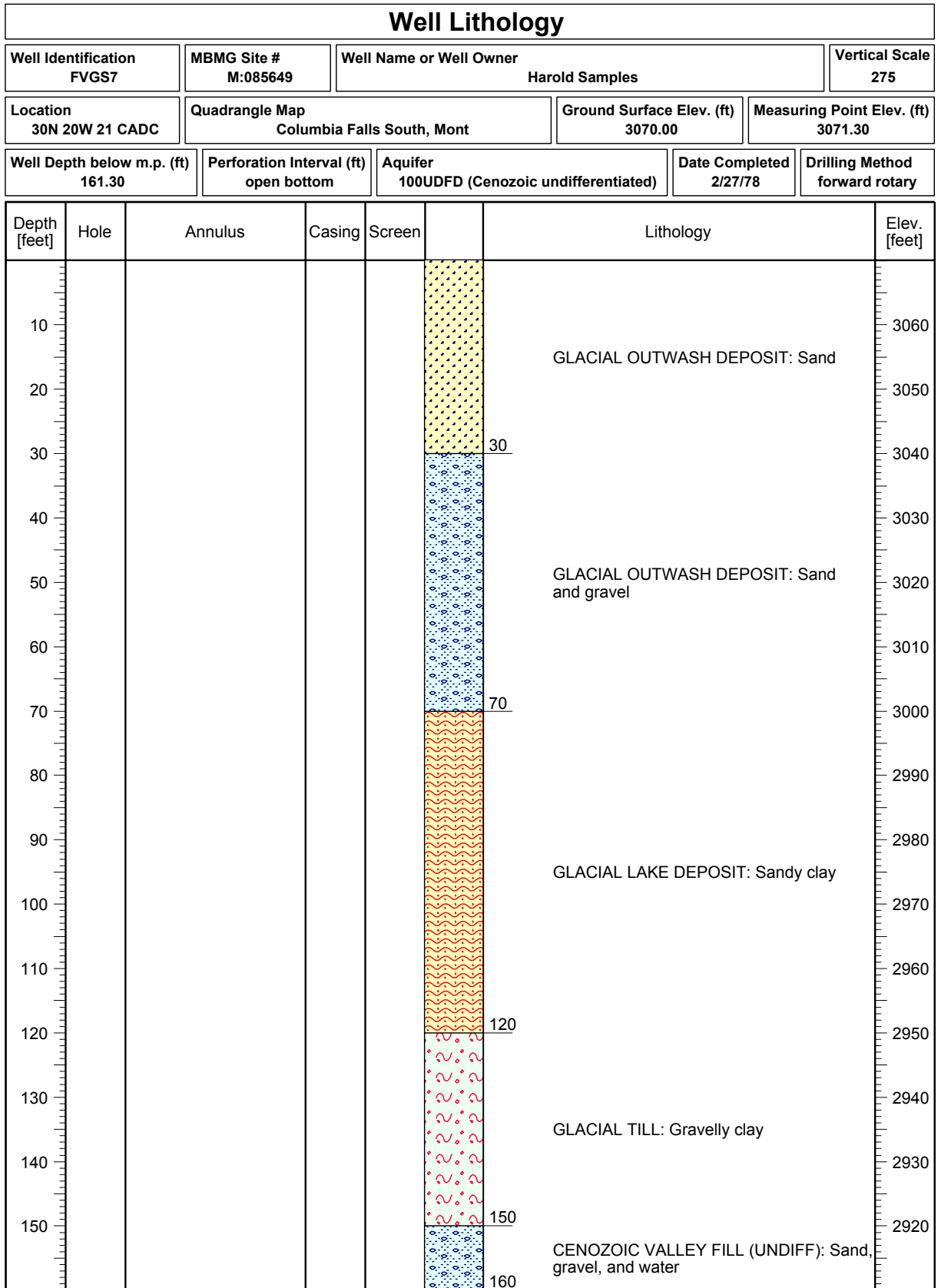
Well Lithology							
Well Identification FVGS2		MBMG Site # M:085703		Well Name or Well Owner Henry Belston			Vertical Scale 125
Location 30N 20W 23 CBCB		Quadrangle Map Columbia Falls South, Mont			Ground Surface Elev. (ft) 3080.00		Measuring Point Elev. (ft) 3077.00
Well Depth below m.p. (ft) 68.00		Perforation Interval (ft) 67 - 70		Aquifer 112TILL (Glacial Till)		Date Completed 3/19/79	Drilling Method cable
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
5							3075
10							3070
15							3065
20							3060
25						GLACIAL TILL, ABLATION DEPOSIT: Cobblestones and clay	3055
30							3050
35							3045
40							3040
45							3035
50					50		3030
55						GLACIAL TILL, ABLATION DEPOSIT: Sand and gravel	3025
60					60		3020
65						GLACIAL TILL, ABLATION DEPOSIT: Smooth gravel	3015
70					71		3010

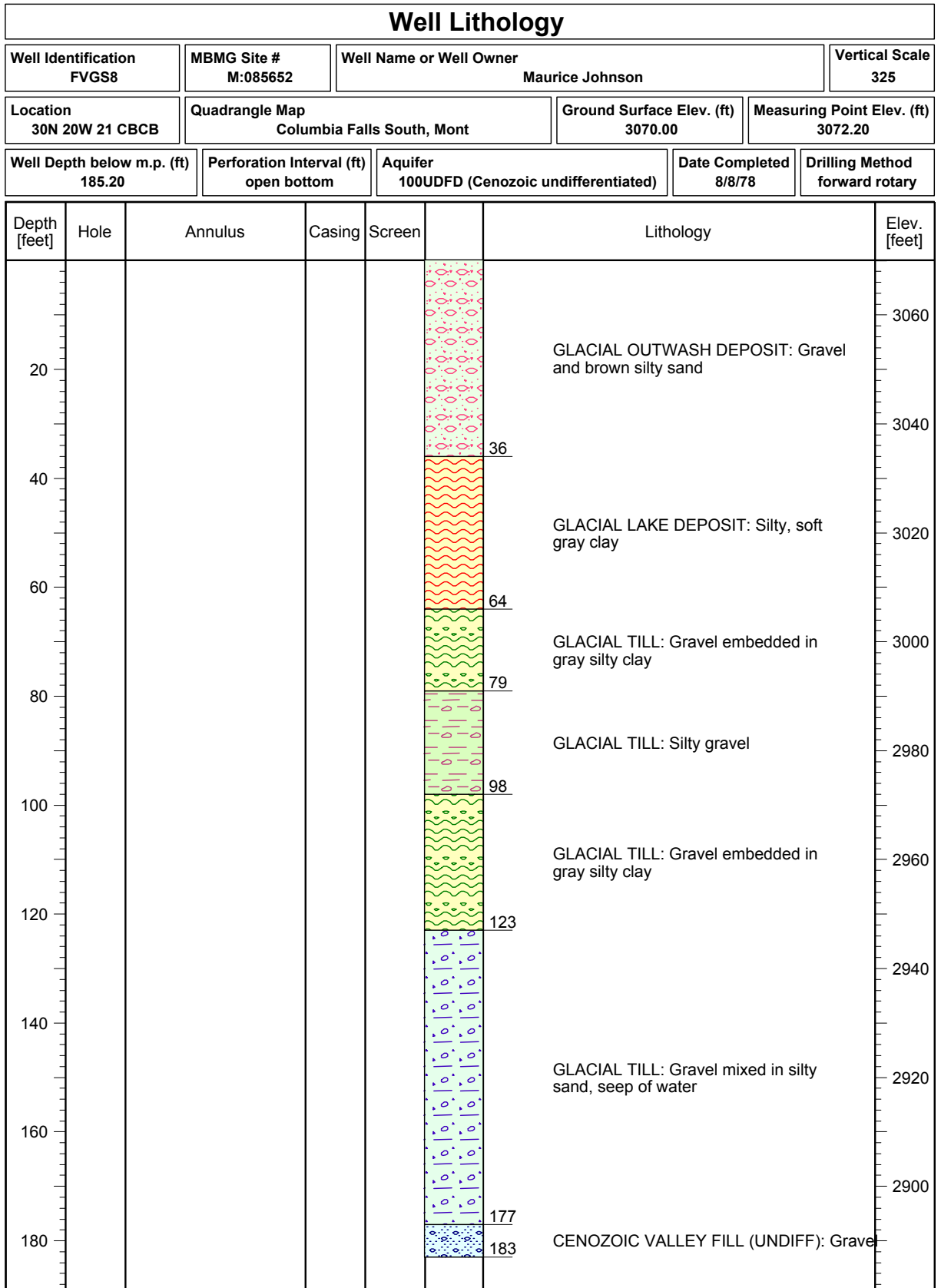


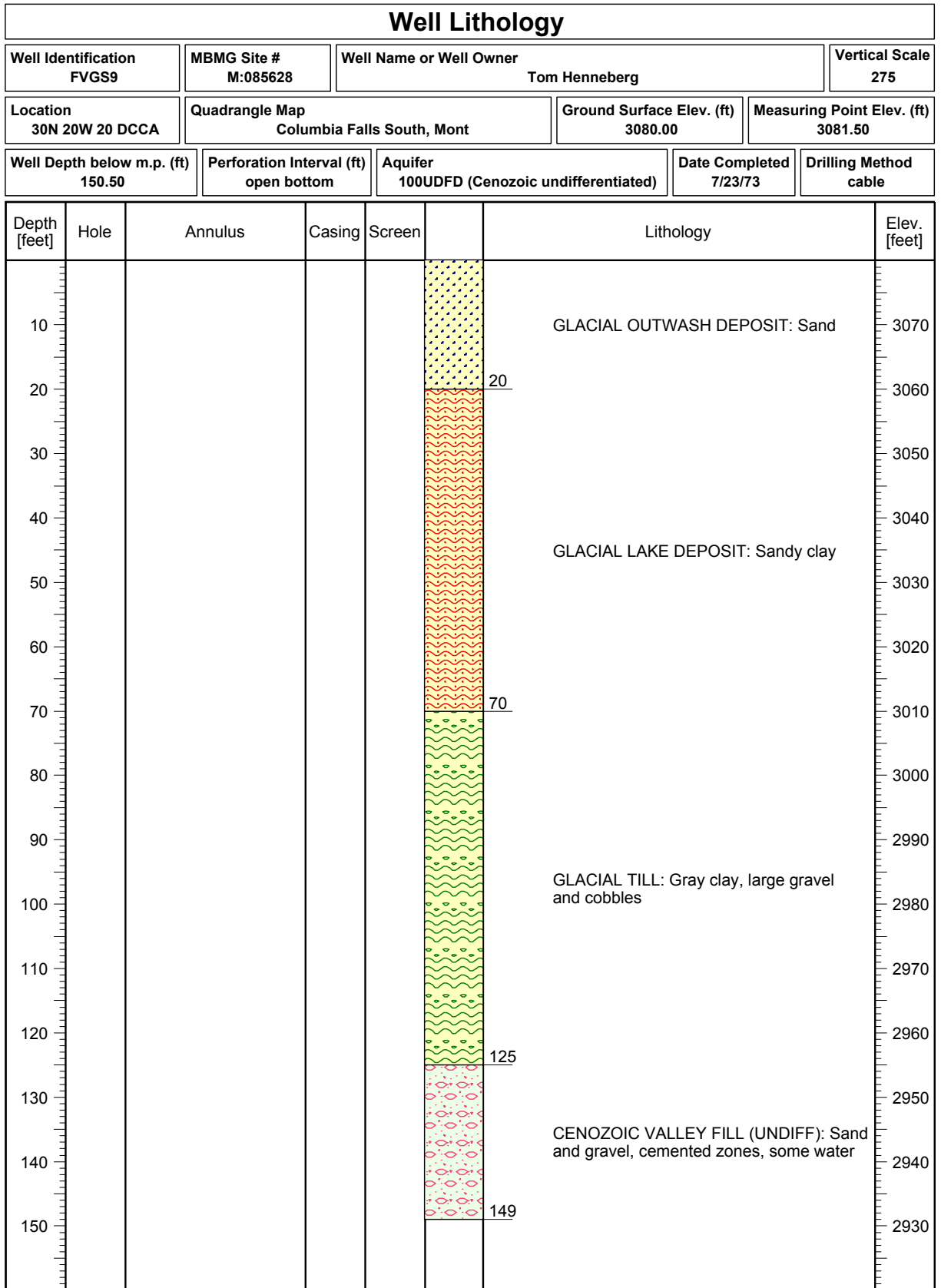
Well Lithology							
Well Identification FVGS5		MBMG Site # M:122756		Well Name or Well Owner Jeff Sternad			Vertical Scale 375
Location 30N 20W 22 CBAC		Quadrangle Map Columbia Falls South, Mont			Ground Surface Elev. (ft) 3070.00		Measuring Point Elev. (ft) 3071.90
Well Depth below m.p. (ft) 211.90		Perforation Interval (ft) open bottom		Aquifer 100UDFD (Cenozoic undifferentiated)		Date Completed 4/15/91	Drilling Method cable
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
20					19 24	GLACIAL OUTWASH DEPOSIT: Large gravels and brown clay GLACIAL OUTWASH DEPOSIT: Sand	3060
40							3040
60							3020
80							3000
100							2980
120						GLACIAL LAKE DEPOSIT: Tan, heaving silt and clay	2960
140							2940
160							2920
180							2900
200					202 210	CENOZOIC VALLEY FILL (UNDIFF): Gravel	2880
							2860

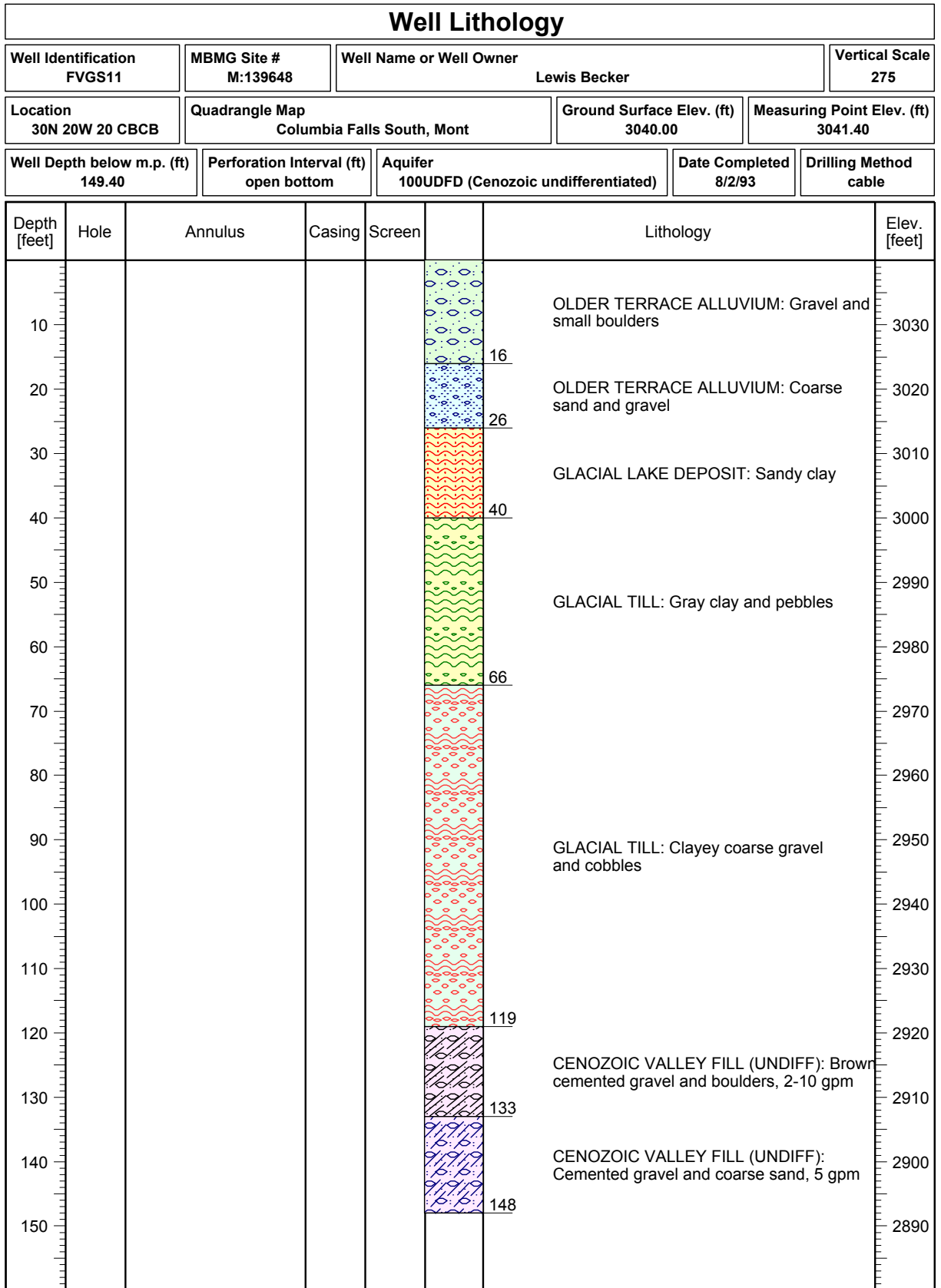
Well Lithology							
Well Identification FVGS6		MBMG Site # M:085669		Well Name or Well Owner Joe Nagel			Vertical Scale 75
Location 30N 20W 22 CBCC		Quadrangle Map Columbia Falls South, Mont			Ground Surface Elev. (ft) 3070.00		Measuring Point Elev. (ft) 3071.90
Well Depth below m.p. (ft) 41.90		Perforation Interval (ft) open bottom		Aquifer 1120TSH (Glacial Outwash)		Date Completed 4/27/83	Drilling Method forward rotary

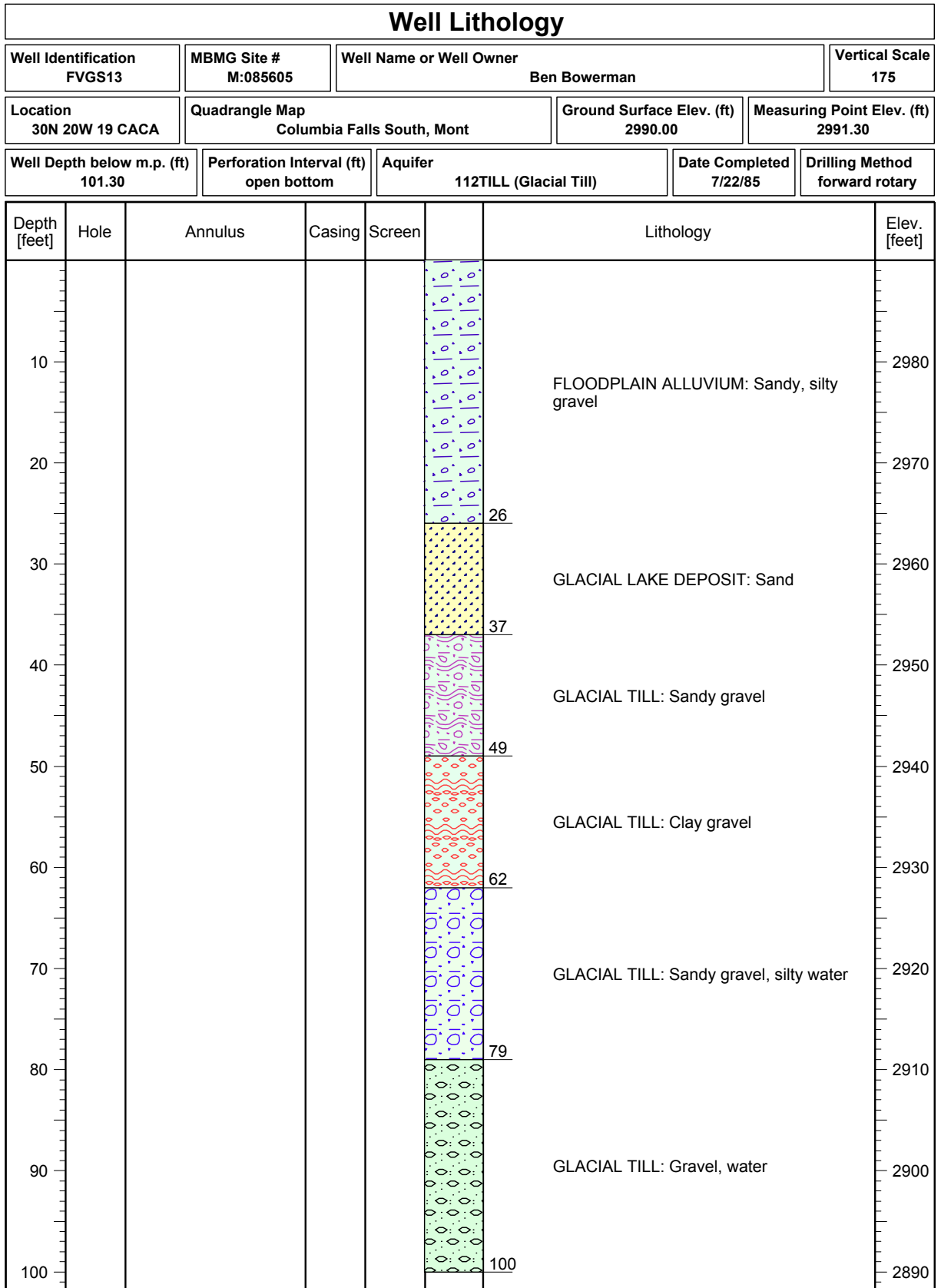
Depth [feet]	Hole	Annulus	Casing	Screen	Lithology	Elev. [feet]
2						3068
4						3066
6						3064
8						3062
10						3060
12						3058
14						3056
16						3054
18						3052
20					GLACIAL OUTWASH DEPOSIT: Sand and gravel, water	3050
22						3048
24						3046
26						3044
28						3042
30						3040
32						3038
34						3036
36						3034
38						3032
40				40		3030
42						3028

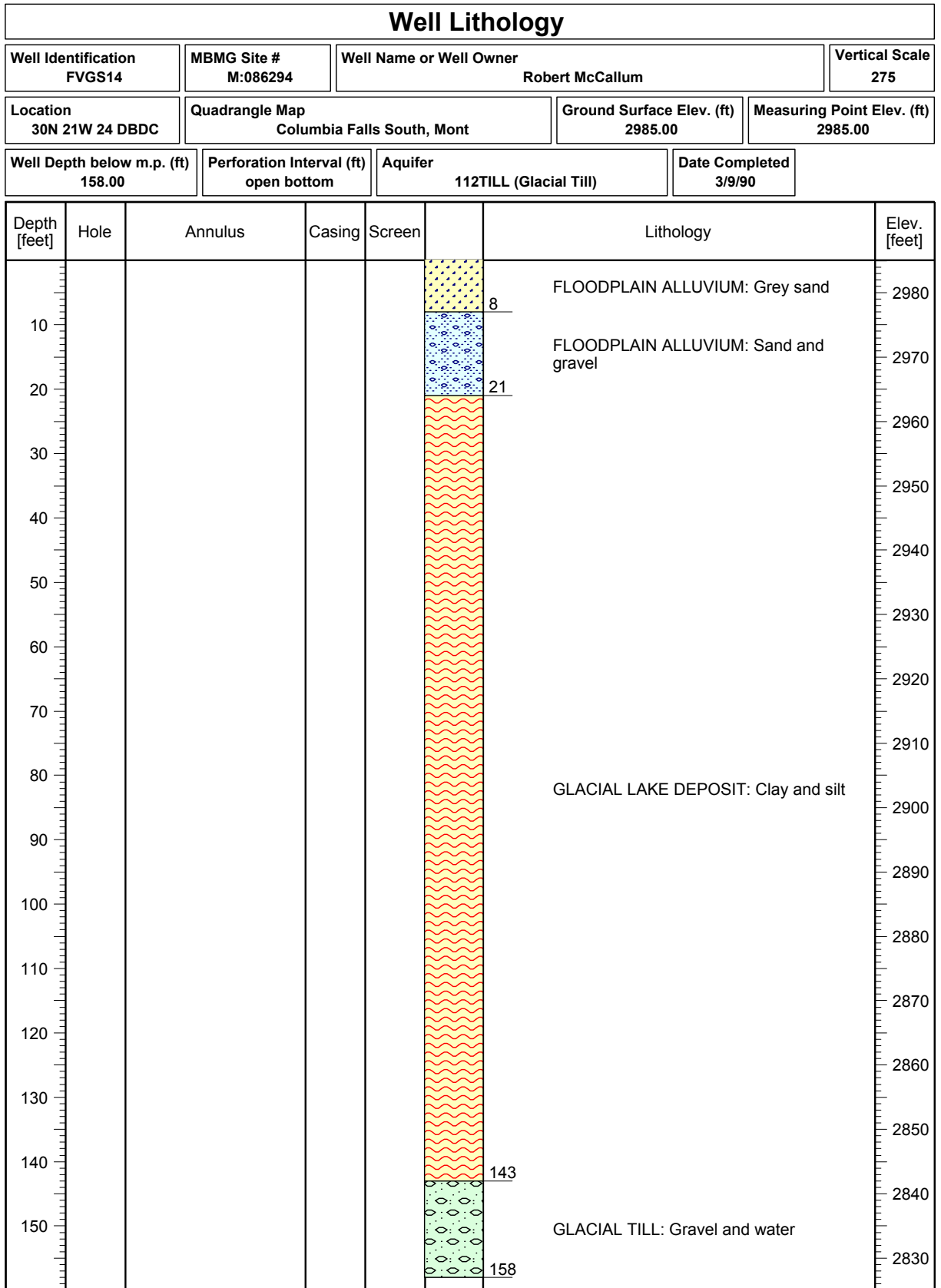




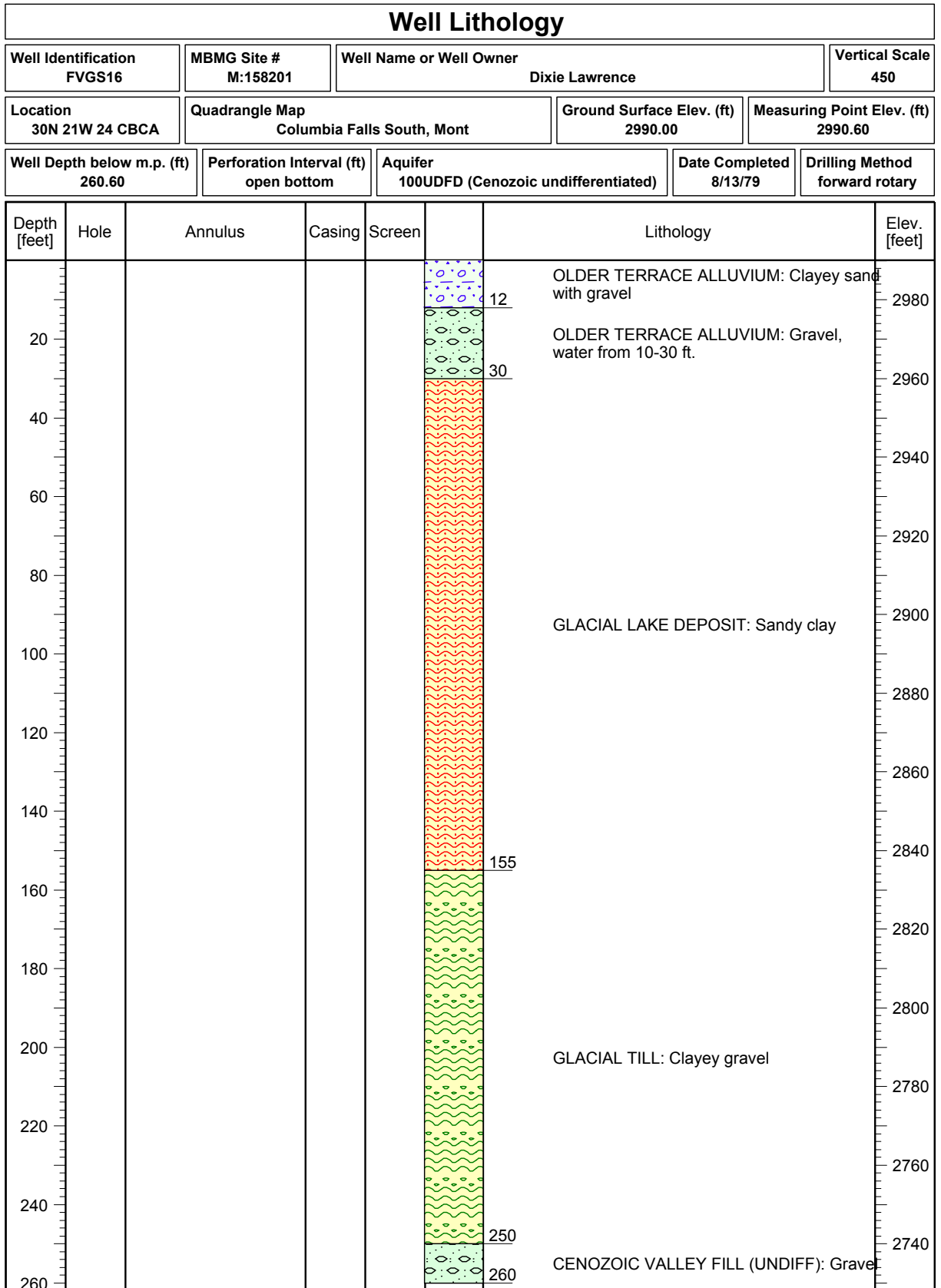


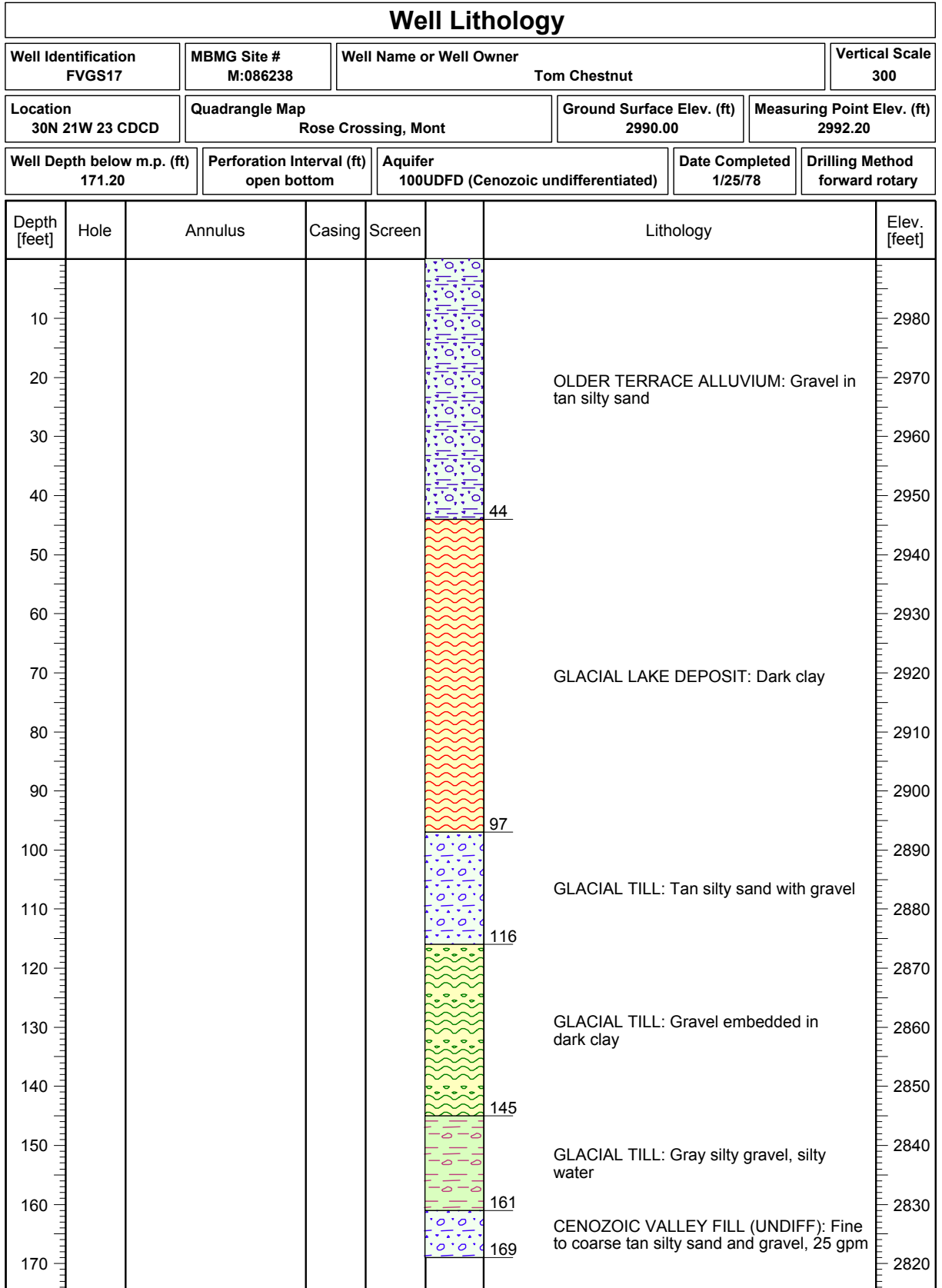






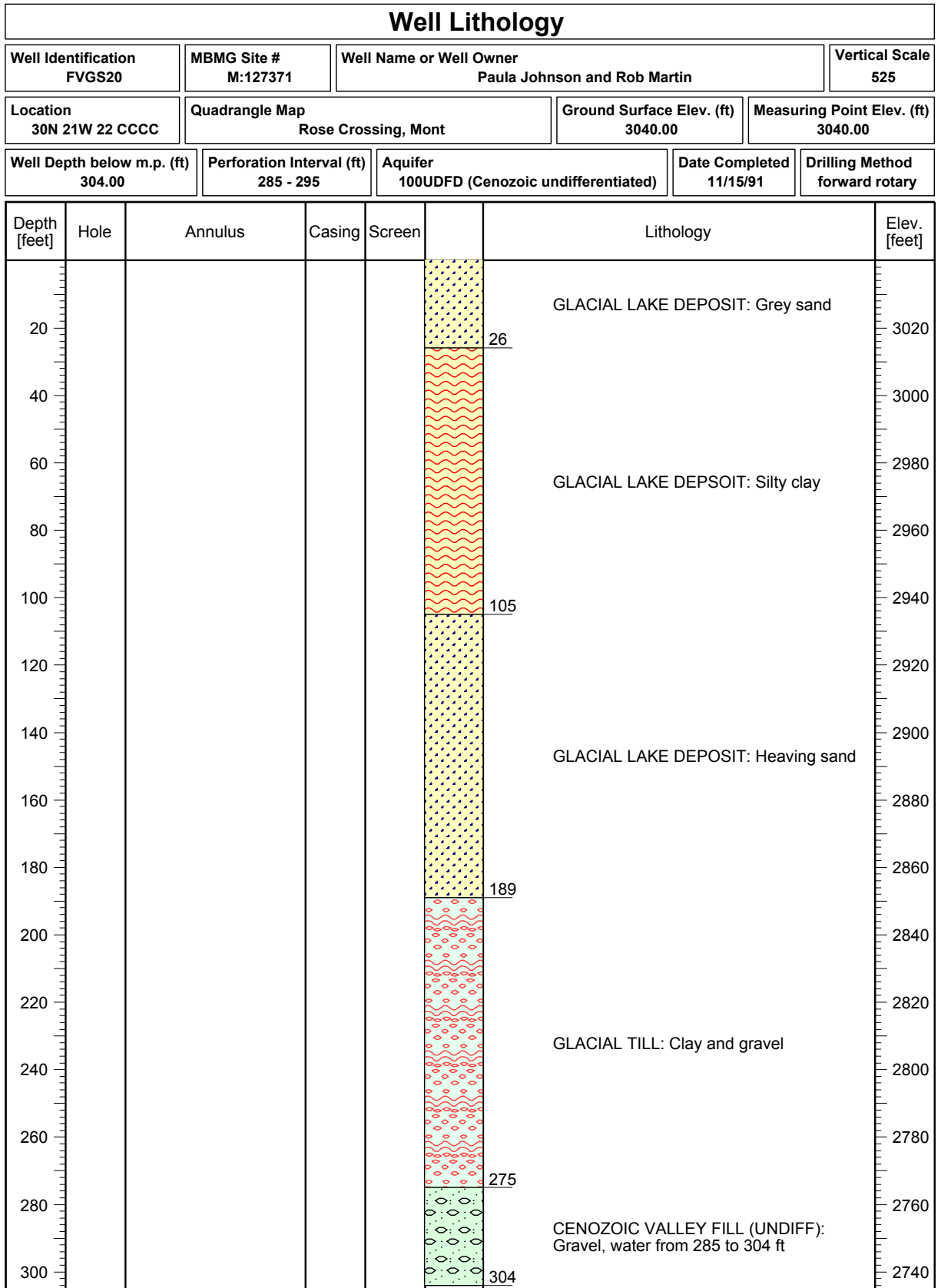
Well Lithology							
Well Identification FVGS15		MBMG Site # M:133133		Well Name or Well Owner Dan Peek			Vertical Scale 55
Location 30N 21W 24 CCCC		Quadrangle Map Columbia Falls South, Mont			Ground Surface Elev. (ft) 2990.00	Measuring Point Elev. (ft) 2992.00	
Well Depth below m.p. (ft) 32.00		Perforation Interval (ft) open bottom		Aquifer 110ALVM (Quaternary Alluvium)		Date Completed 8/7/92	Drilling Method cable
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
2							2988
4							2986
6							2984
8							2982
10							2980
12							2978
14						OLDER TERRACE ALLUVIUM: Clayey gravel and sand, water from 10-30 ft.	2976
16							2974
18							2972
20							2970
22							2968
24							2966
26							2964
28							2962
30						GLACIAL LAKE DEPOSIT: Brown clay	2960

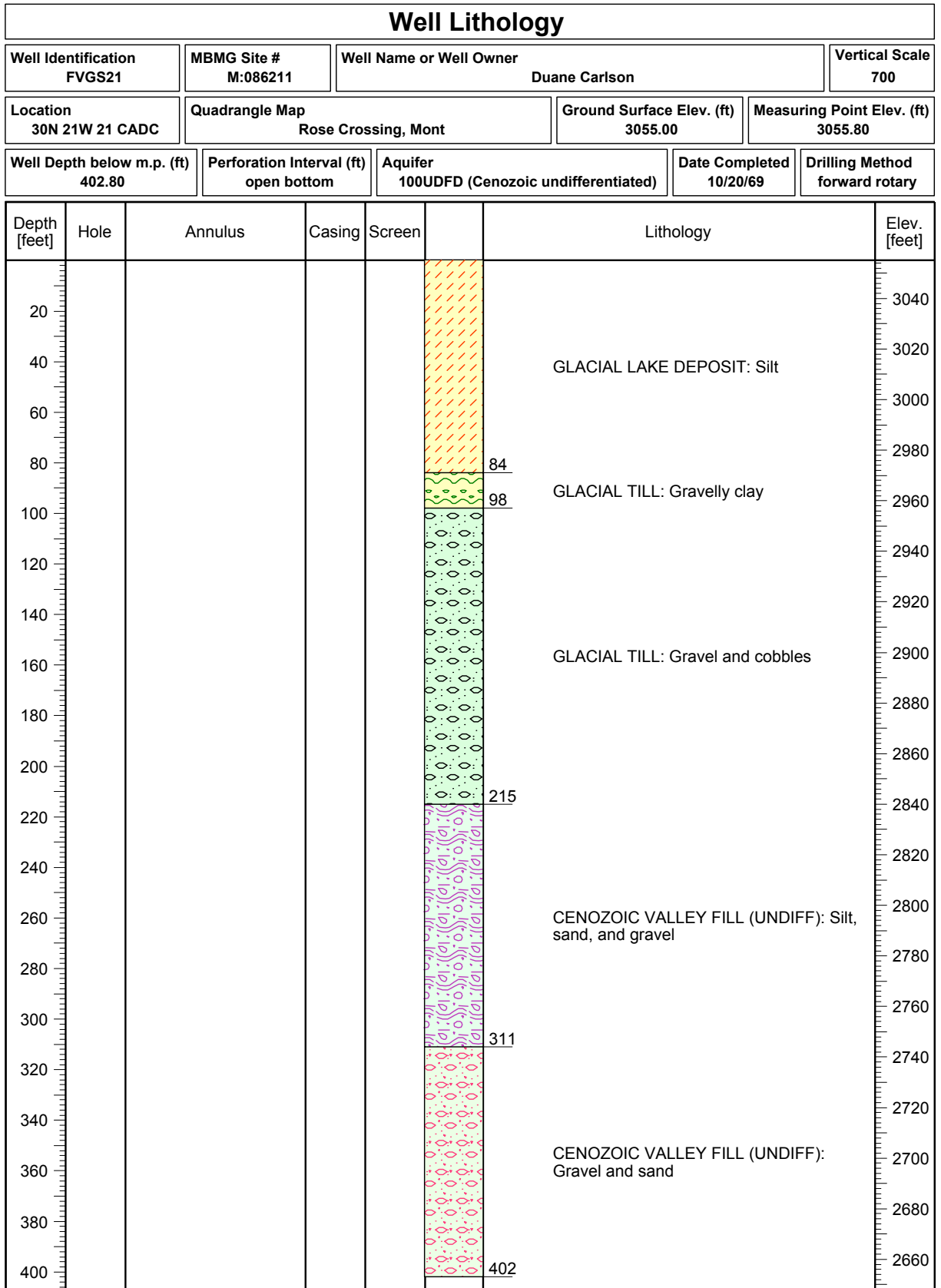


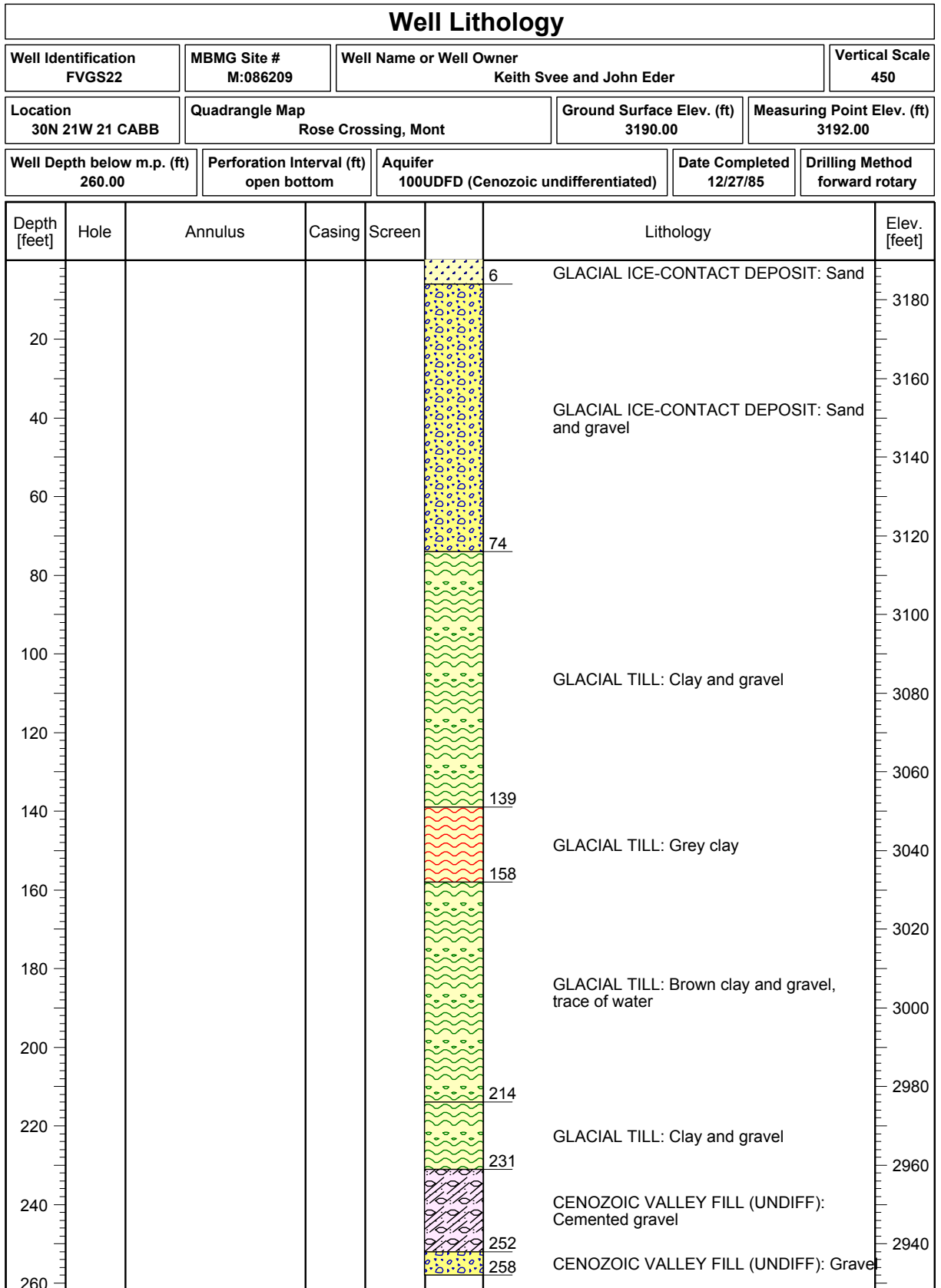


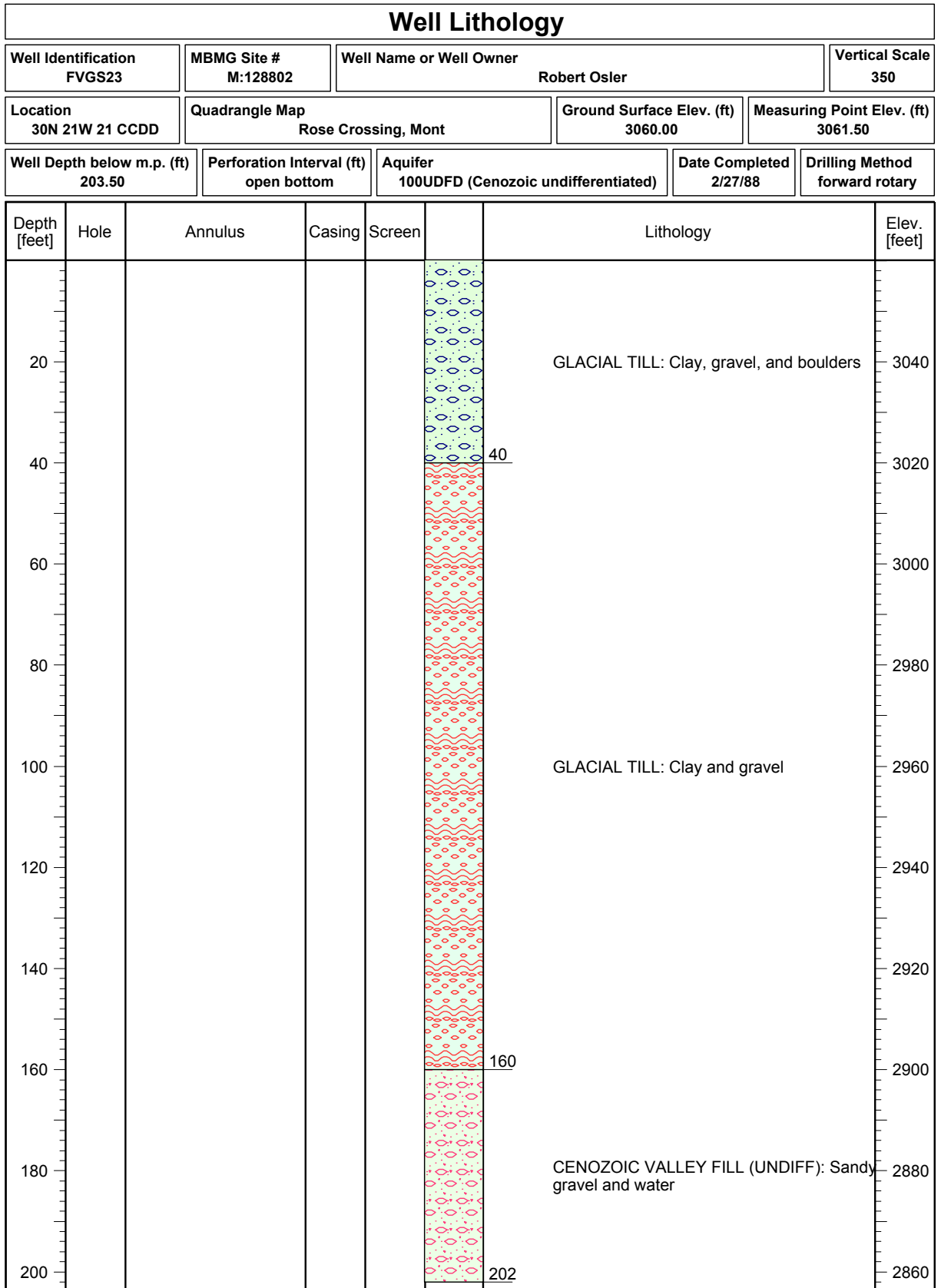
Well Lithology							
Well Identification FVGS18		MBMG Site # M:153005		Well Name or Well Owner Leonard Greene (SOUTH irrigation well)			Vertical Scale 1075
Location 30N 21W 23 CCBB		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3000.00	Measuring Point Elev. (ft) 3002.10	
Well Depth below m.p. (ft) 623.10		Perforation Interval (ft) 464-524, 562-606		Aquifer 100UDFD (Cenozoic undifferentiated)		Date Completed 6/2/92	Drilling Method rotary, bored
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
50					36	GLACIAL OUTWASH DEPOSIT Gravel in tan silty sand	2950
100					89	GLACIAL OUTWASH DEPOSIT: Scattered gravel in tan clay	2900
150						GLACIAL TILL: Sand and gravel in brown silty matrix. Seeps of silty water	2850
200					185		2800
250						GLACIAL TILL: Tight angular gravel and cobbles in tan sandy clay	2750
300					314		2700
350						CENOZOIC VALLEY FILL (UNDIFF): Angular gravel mixed with round multi-colored gravel and sand, 5-10 gpm from 314- 325 ft. 50 gpm from 438-450 ft.	2650
400					450		2600
450						CENOZOIC VALLEY FILL (UNDIFF): Angular gravel in coarse sand, some cemented layers, 200-400 gpm	2550
500					529		2500
550					561	CENOZOIC VALLEY FILL (UNDIFF): Angular gravel, cobbles, and boulders, 50 gpm	2450
600					621	CENOZOIC VALLEY FILL (UNDIFF): Angular gravel and coarse sand, 20+ gpm to 450 gpm near 600 ft	2400

Well Lithology							
Well Identification FVGS19		MBMG Site # M:086220		Well Name or Well Owner James Ronald			Vertical Scale 150
Location 30N 21W 22 CDAC		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3040.00	Measuring Point Elev. (ft) 3041.10	
Well Depth below m.p. (ft) 76.10		Perforation Interval (ft) open bottom		Aquifer 1120TSH (Glacial Outwash)		Date Completed 5/21/89	Drilling Method forward rotary
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
5						GLACIAL OUTWASH DEPOSIT: Silty sand	3035
10					10		3030
15						GLACIAL LAKE DEPOSIT: Sand	3025
20							3020
25							3015
30							3010
35						GLACIAL TILL: Gravel and sand	3005
40					40		3000
45							2995
50							2990
55						GLACIAL TILL: Gravel and water	2985
60					60		2980
65							2975
70							2970
75					75		2965
80							2960
85							2955

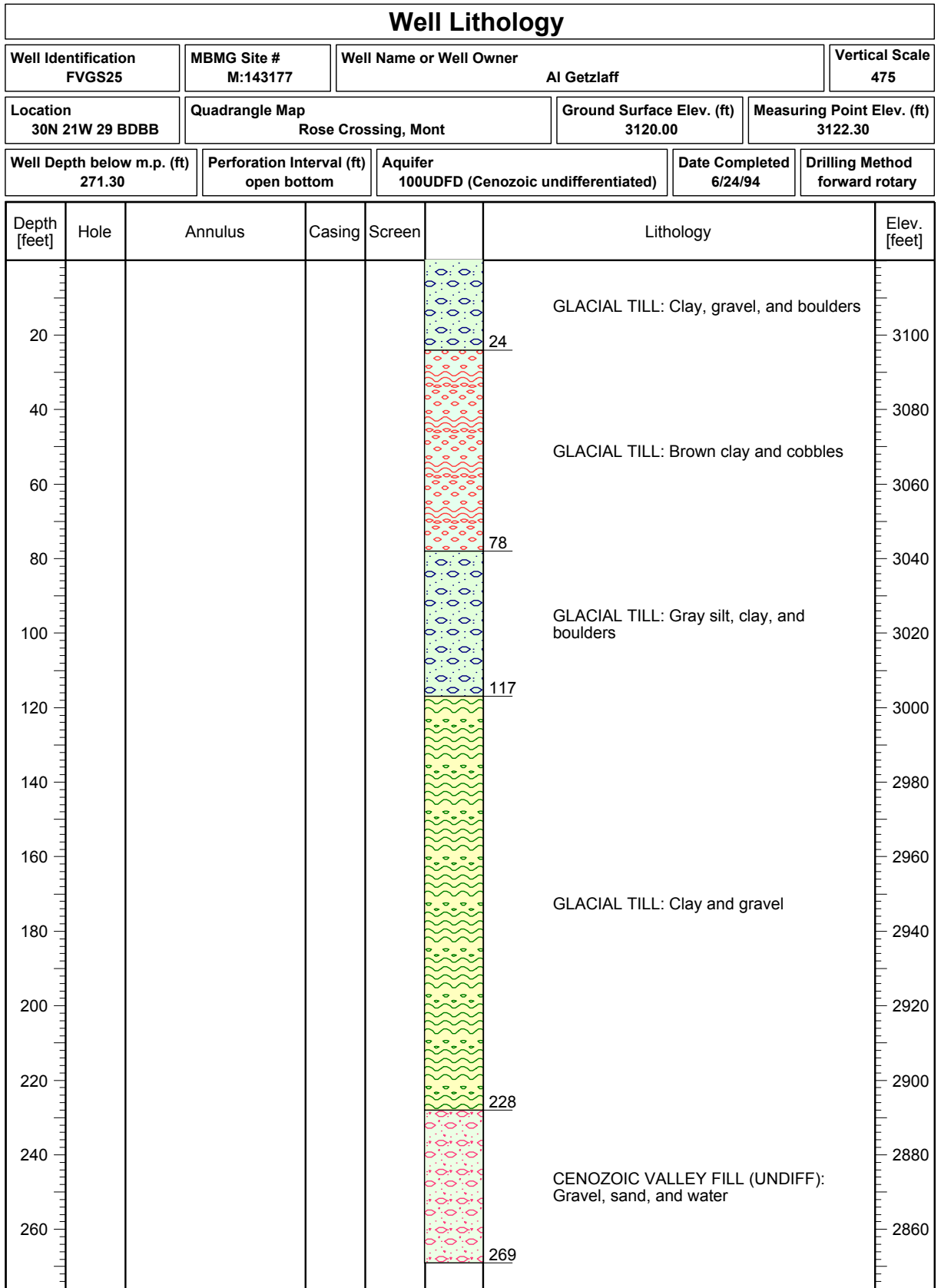




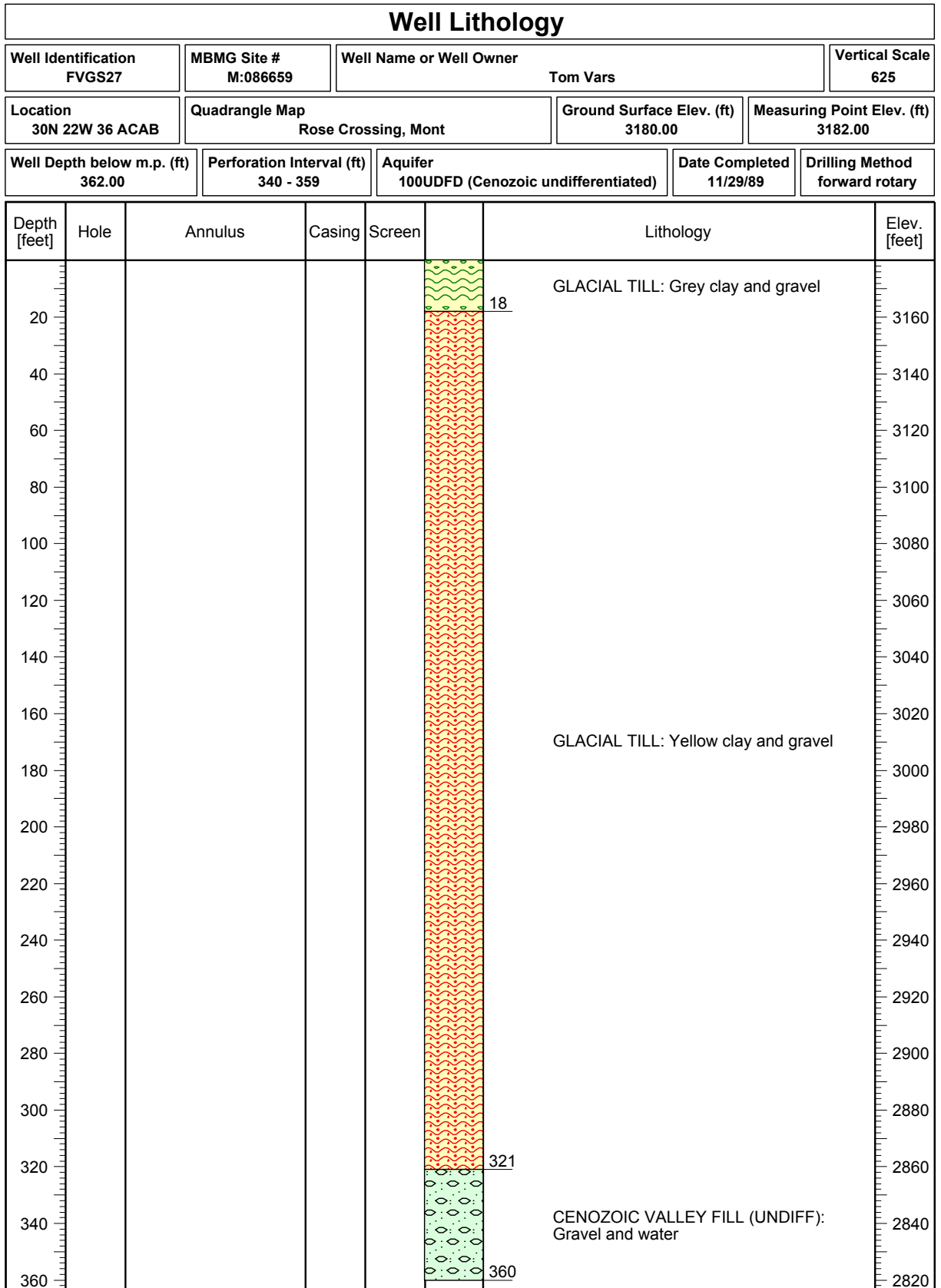


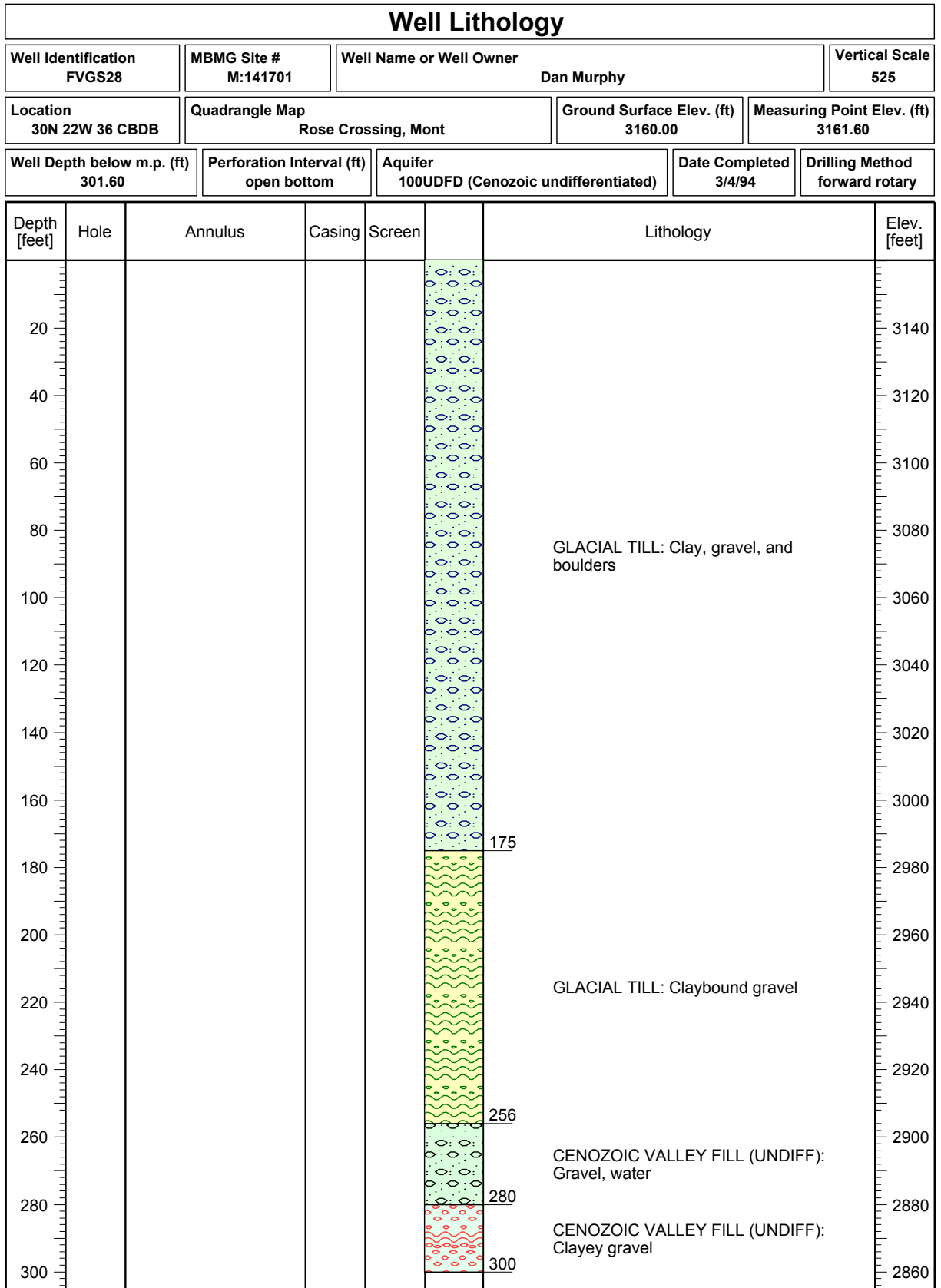


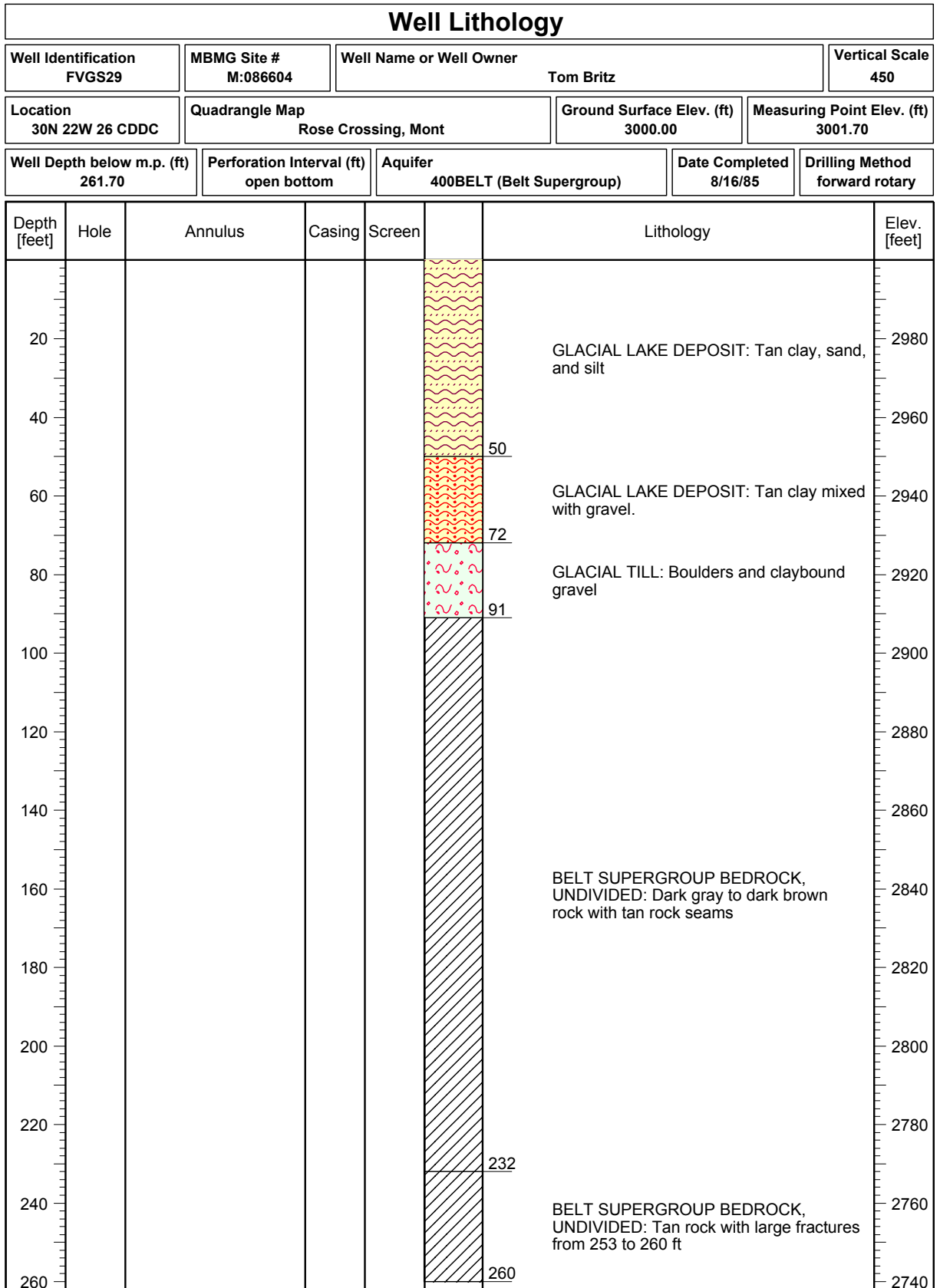
Well Lithology							
Well Identification FVGS24		MBMG Site # M:086334		Well Name or Well Owner Lloyd Anderson			Vertical Scale 150
Location 30N 21W 29 ACBB		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3110.00		Measuring Point Elev. (ft) 3111.50
Well Depth below m.p. (ft) 81.50		Perforation Interval (ft) 64 - 79		Aquifer 112TILL (Glacial Till)		Date Completed 7/25/78	Drilling Method forward rotary
Depth [feet]	Hole	Annulus	Casing	Screen	Lithology	Elev. [feet]	
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85					GLACIAL TILL: Clay with gravel and boulders	3105 3100 3095 3090 3085 3080 3075 3070 3065 3060 3055 3050 3045 3040 3035 3030 3025	
					GLACIAL TILL: Cemented gravel, sand, and water		

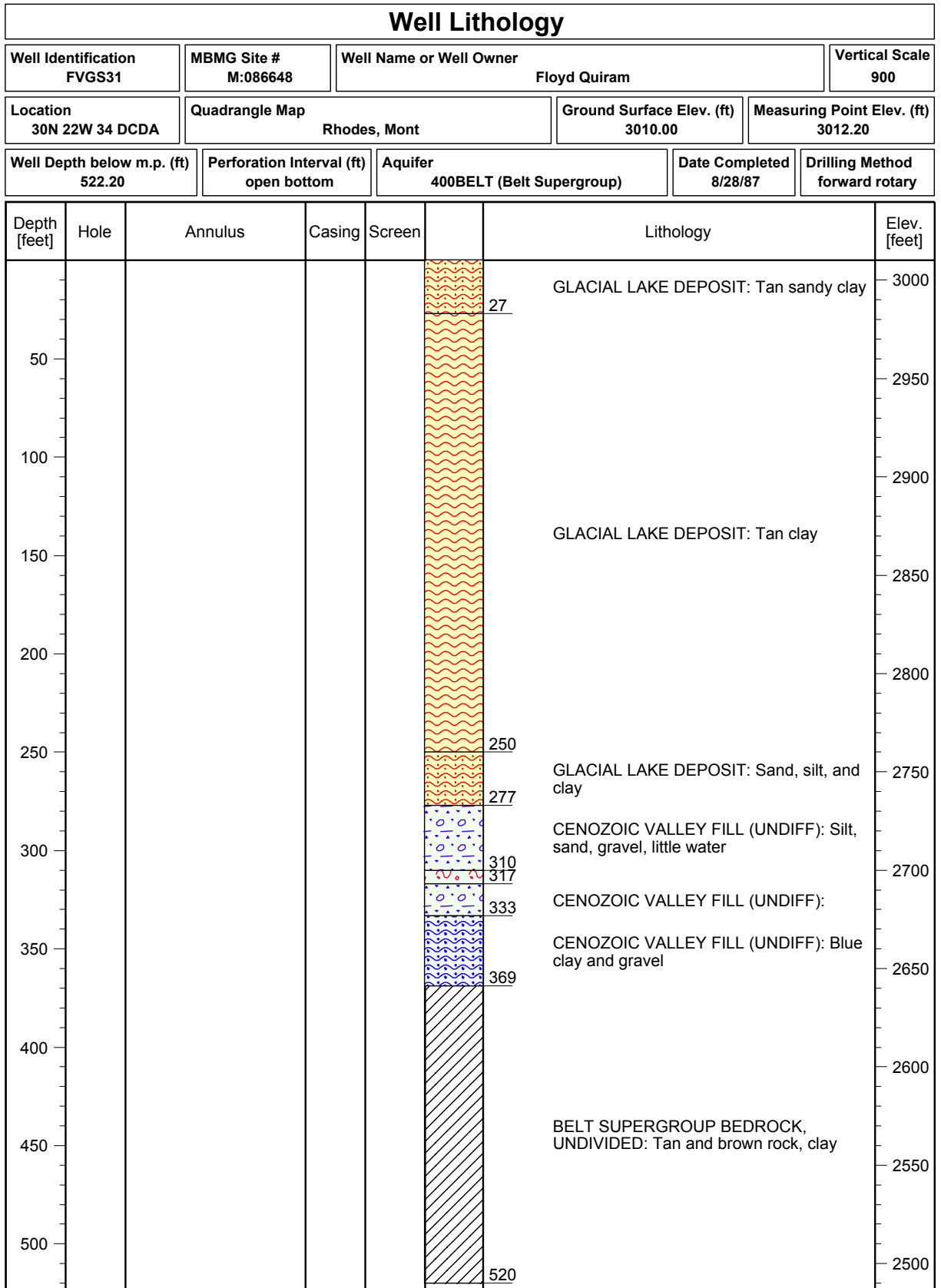


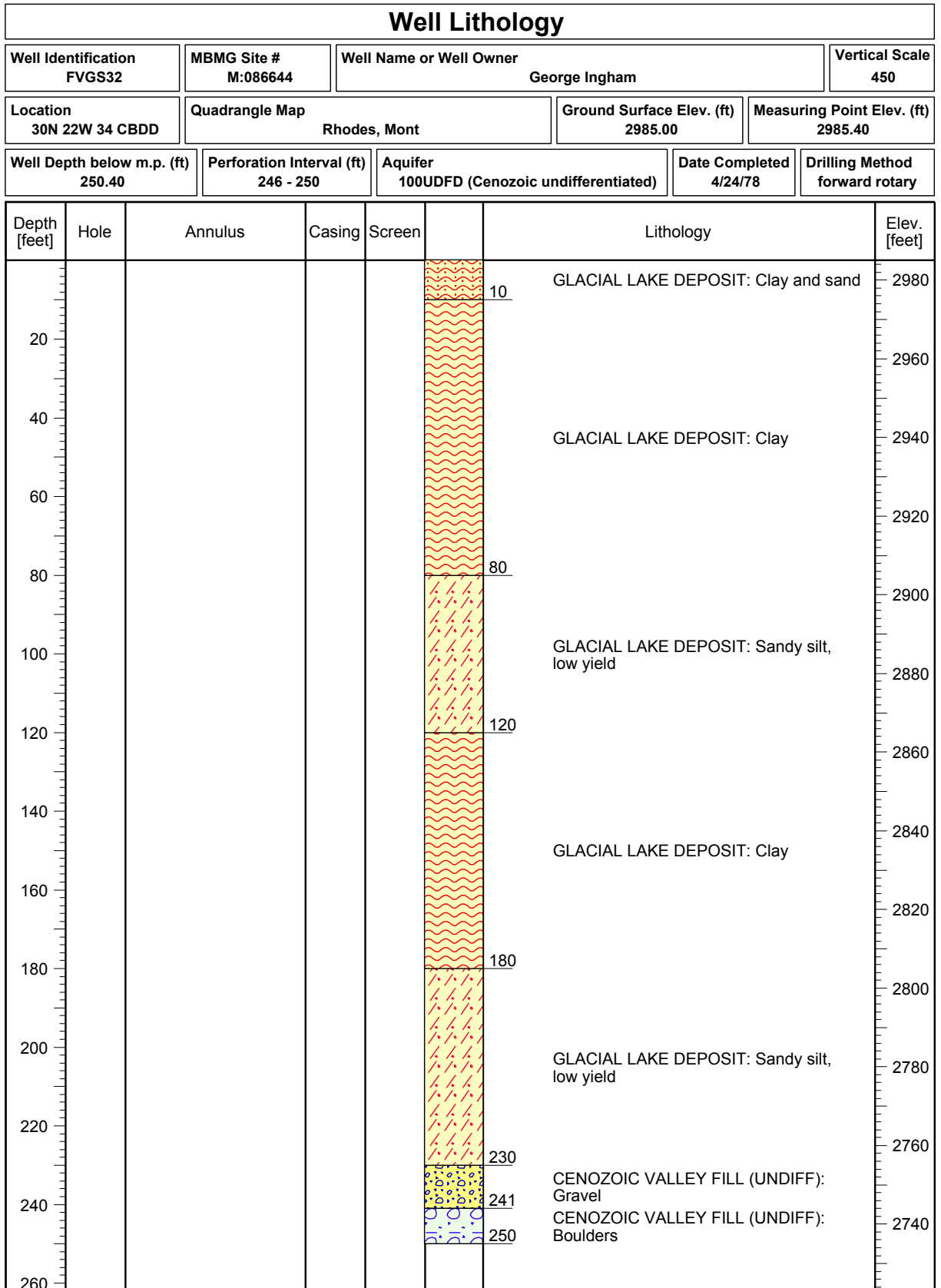
Well Lithology							
Well Identification FVGS26		MBMG Site # M:158202		Well Name or Well Owner Luella Grauck			Vertical Scale 550
Location 30N 22W 36 AABD		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3200.00	Measuring Point Elev. (ft) 3201.60	
Well Depth below m.p. (ft) 319.60		Perforation Interval (ft) open bottom		Aquifer 112TILL (Glacial Till)		Date Completed 6/26/90	Drilling Method forward rotary
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
20							3180
40							3160
60							3140
80							3120
100						GLACIAL TILL: Clay-bound sand, gravel, cobbles, with boulders in top 50 ft	3100
120							3080
140							3060
160							3040
180							3020
200					188 201	GLACIAL TILL: Brown clay	3000
220							2980
240						GLACIAL TILL: Clay-bound sand and gravel	2960
260					265		2940
280						GLACIAL TILL: Claybound sand and gravel, with clay lenses from 265 to 285 ft	2920
300					318		2900





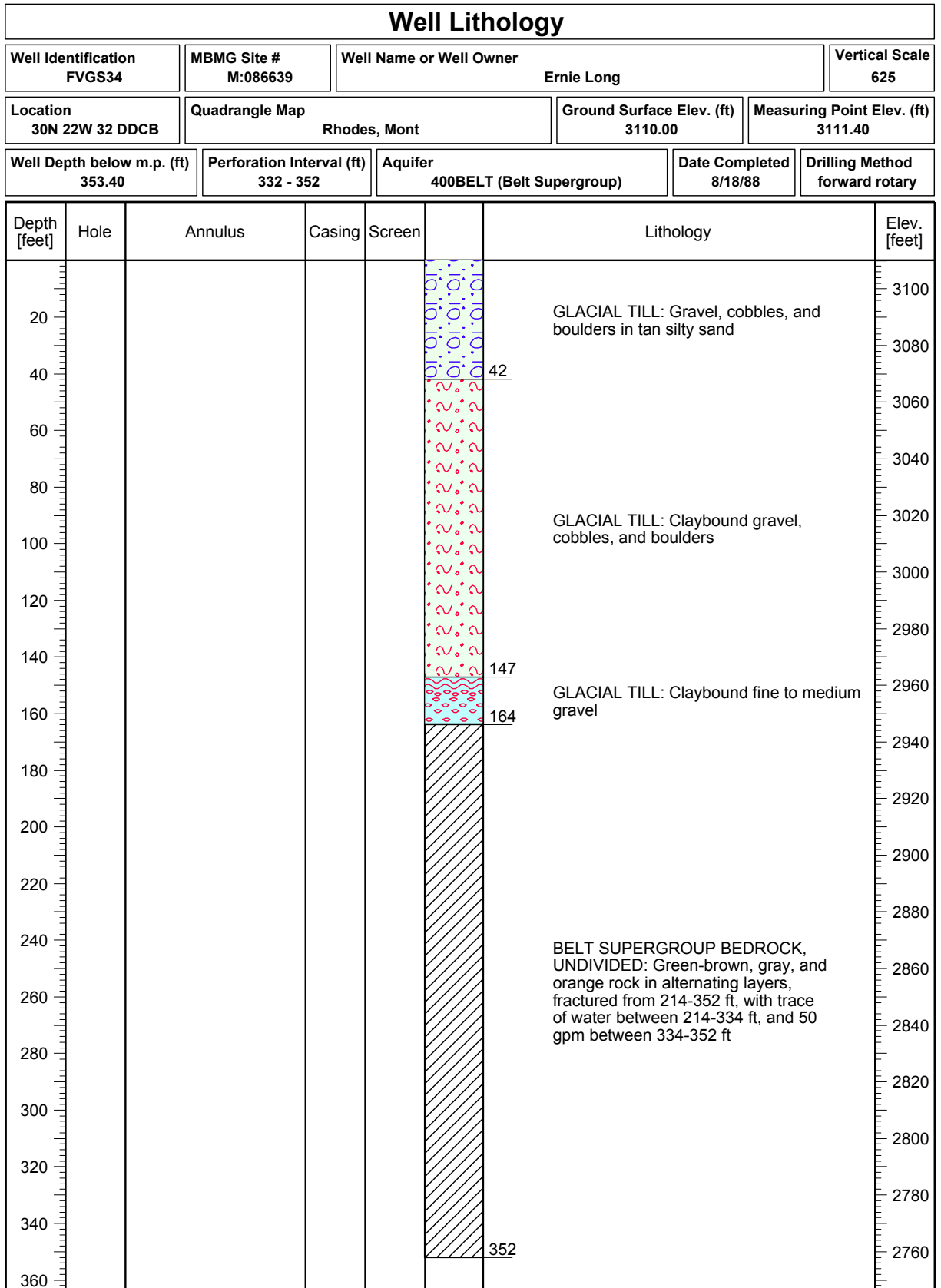




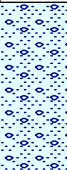
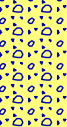


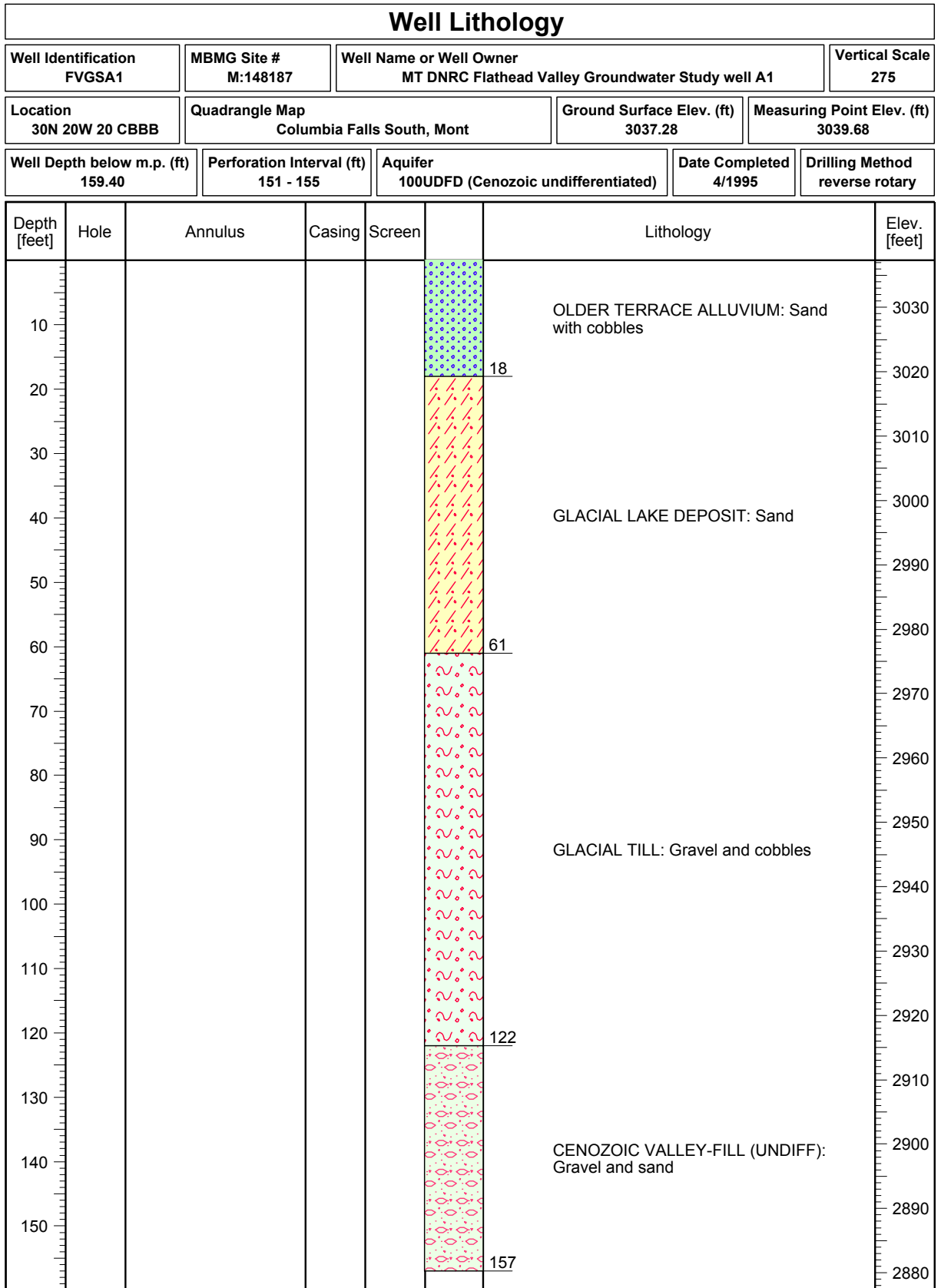
Well Lithology							
Well Identification FVGS33		MBMG Site # M:084489		Well Name or Well Owner Ken Ashby			Vertical Scale 450
Location 29N 22W 04 BBAD		Quadrangle Map Rhodes, Mont			Ground Surface Elev. (ft) 3100.00		Measuring Point Elev. (ft) 3102.10
Well Depth below m.p. (ft) 254.10		Perforation Interval (ft) open bottom		Aquifer 112TILL (Glacial Till)		Date Completed 9/20/89	

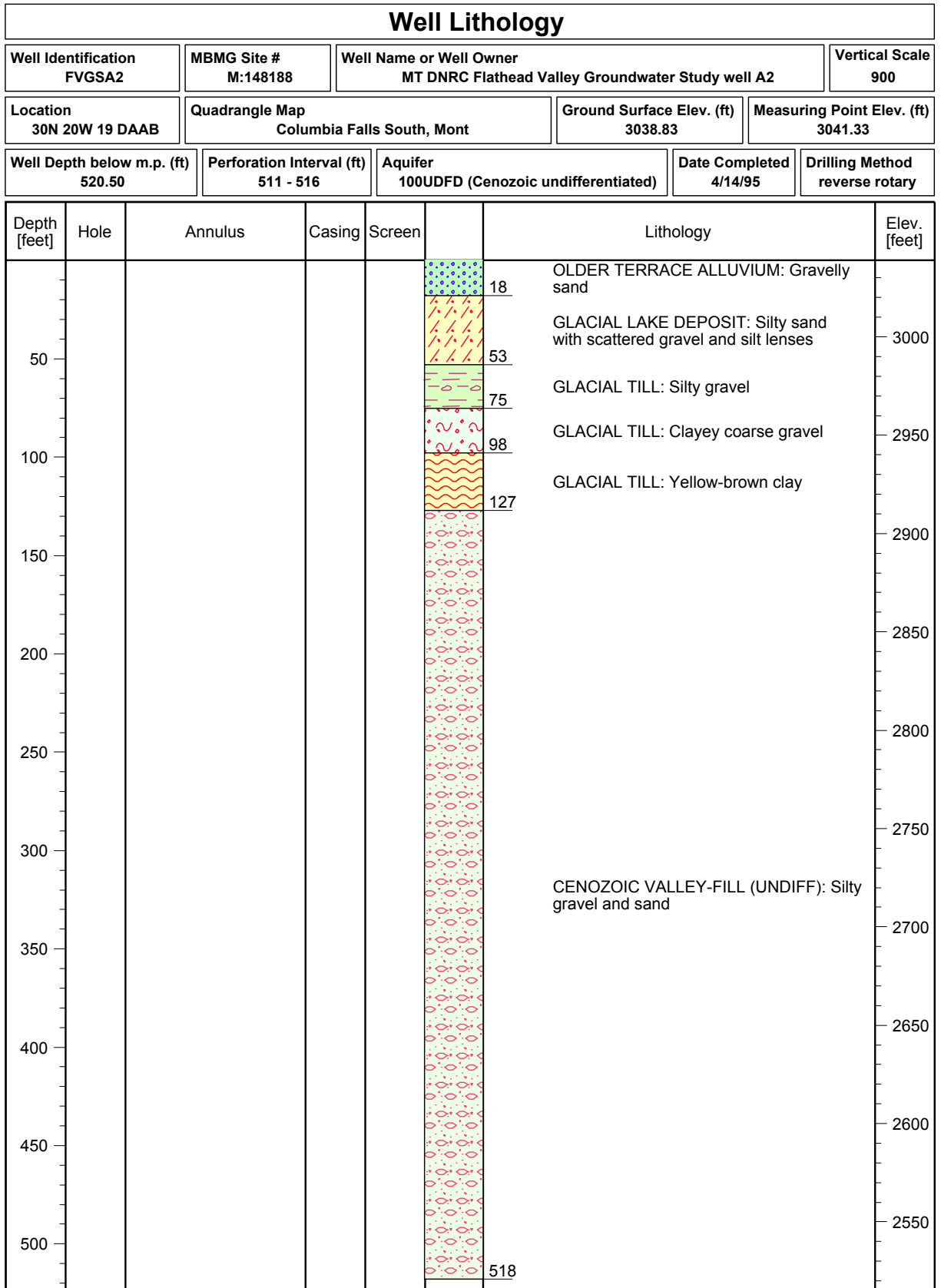
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
20						GLACIAL TILL: Claybound gravel, cobbles, and boulders	3080
40							3060
60					57	GLACIAL TILL: Claybound gravel	3040
80							3020
100						GLACIAL TILL: Green boulders and cemented gravel layers	3000
120					128		2980
140					147	GLACIAL TILL: Claybound sand, gravel, and cobbles, water	2960
160							2940
180							2920
200							2900
220							2880
240							2860
260					252		2840

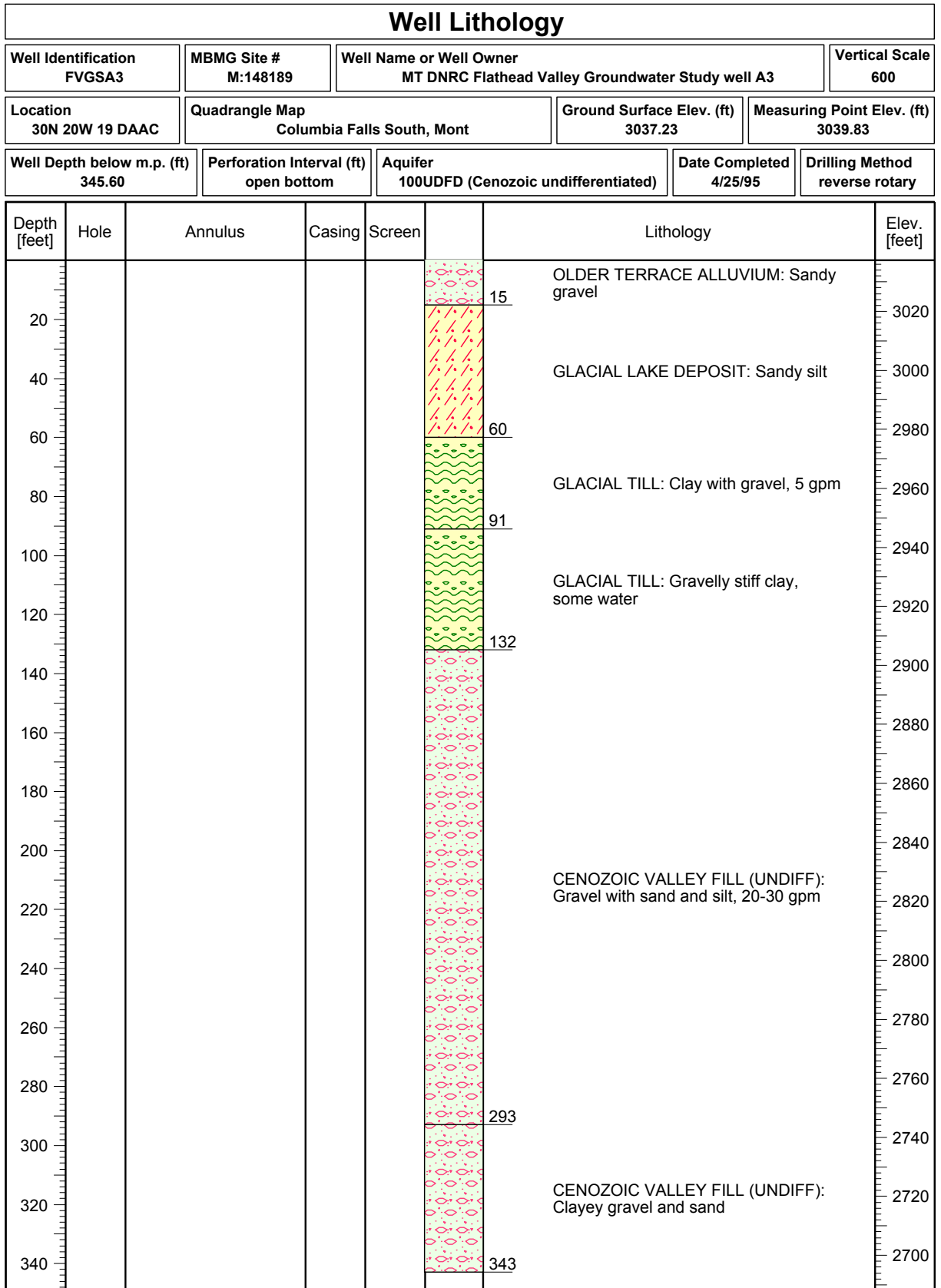


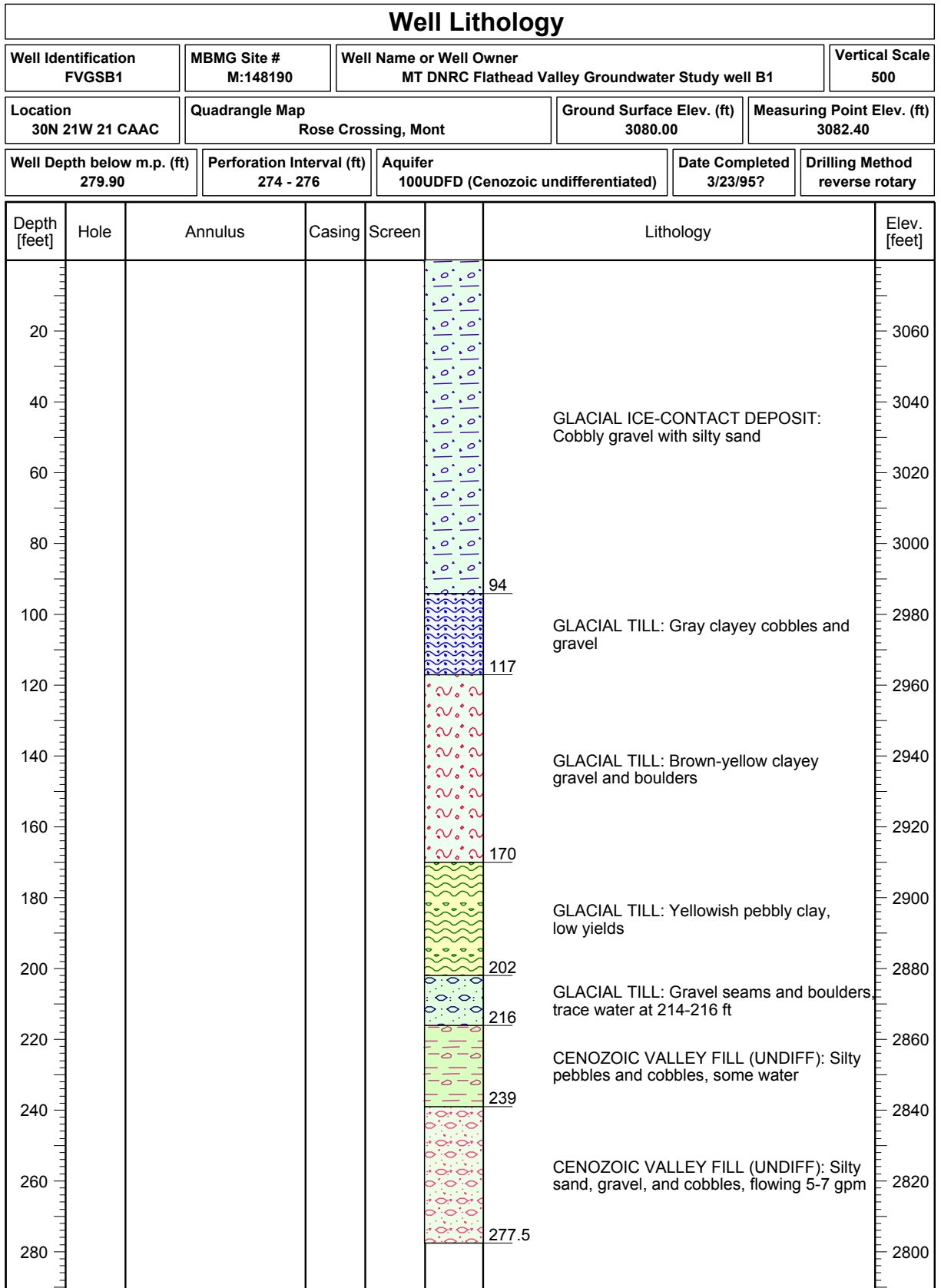
Well Lithology							
Well Identification FVGS35		MBMG Site # M:086641		Well Name or Well Owner Mark Cyr			Vertical Scale 100
Location 30N 22W 32 DCDA		Quadrangle Map Rhodes, Mont			Ground Surface Elev. (ft) 3105.00	Measuring Point Elev. (ft) 3107.10	
Well Depth below m.p. (ft) 52.10		Perforation Interval (ft) open bottom		Aquifer 112TILL (Glacial Till)		Date Completed 6/2/89	Drilling Method cable
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
5						GLACIAL TILL: Claybound gravel and boulders	3100
10							3095
15							3090
20						GLACIAL TILL: Claybound gravel	3085
25							3080
30							3075
35							3070
40							3065
45						GLACIAL TILL: Gravel	3060
50							3055
55							3050

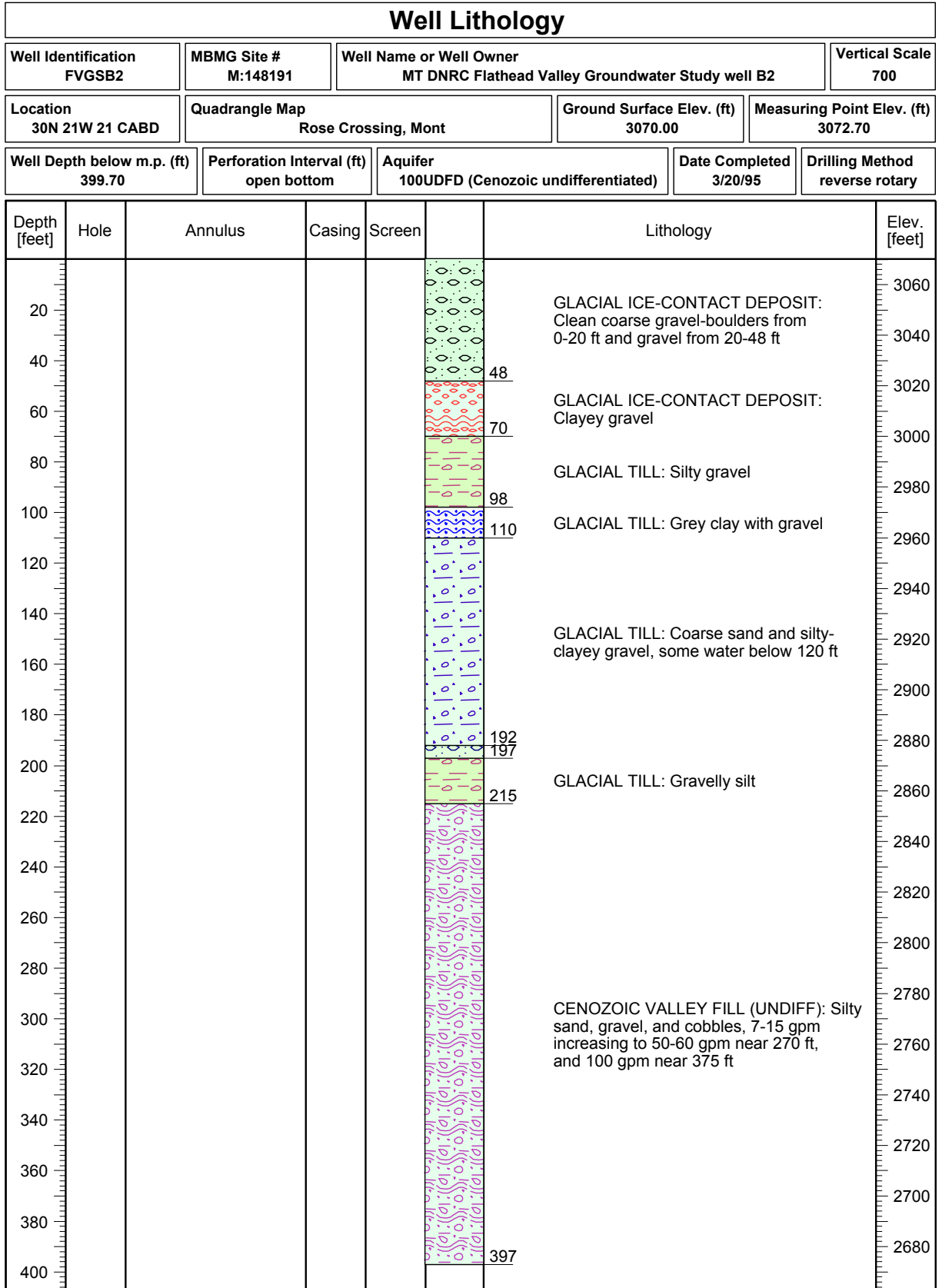
Well Lithology							
Well Identification FVGS37		MBMG Site # M:153004		Well Name or Well Owner Leonard Greene (NORTH irrigation well)			Vertical Scale 1025
Location 30N 21W 23 BBCC		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3000.00		Measuring Point Elev. (ft) 3001.60
Well Depth below m.p. (ft) 593.60		Perforation Interval (ft) 514 - 590		Aquifer 100UDFD (Cenozoic undifferentiated)		Date Completed 6/15/92	Drilling Method rotary, bored
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
50						GLACIAL OUTWASH DEPOSIT: Gravelly sand and cobbles, with silty sand lenses	2950
					79		
100						GLACIAL TILL: Medium to coarse gravel embedded in clay	2900
150					186		2850
200						GLACIAL TILL: Silt, gravel, and cobbles	2800
					208		
						GLACIAL TILL: Gravel in tan clay	
					229		
250						GLACIAL TILL: Sand and gravel, 15 gpm	2750
300					296		2700
350						CENOZOIC VALLEY FILL (UNDIFF): Silty fine gravel, cemented gravel seams	2650
400					427		2600
450						CENOZOIC VALLEY FILL (UNDIFF):	
					446		
						CENOZOIC VALLEY FILL (UNDIFF): Gravel	2550
					458		
						CENOZOIC VALLEY FILL (UNDIFF): Silty gravel and cobbles, 300 gpm	
					485		
500						CENOZOIC VALLEY FILL (UNDIFF): Cemented gravel seams	2500
					515		
550						CENOZOIC VALLEY FILL (UNDIFF): Sand, gravel, and cobbles, 300-500 gpm	2450
					558		
						CENOZOIC VALLEY FILL (UNDIFF): Gravel and sand in orange silt, 300 gpm	
					592		

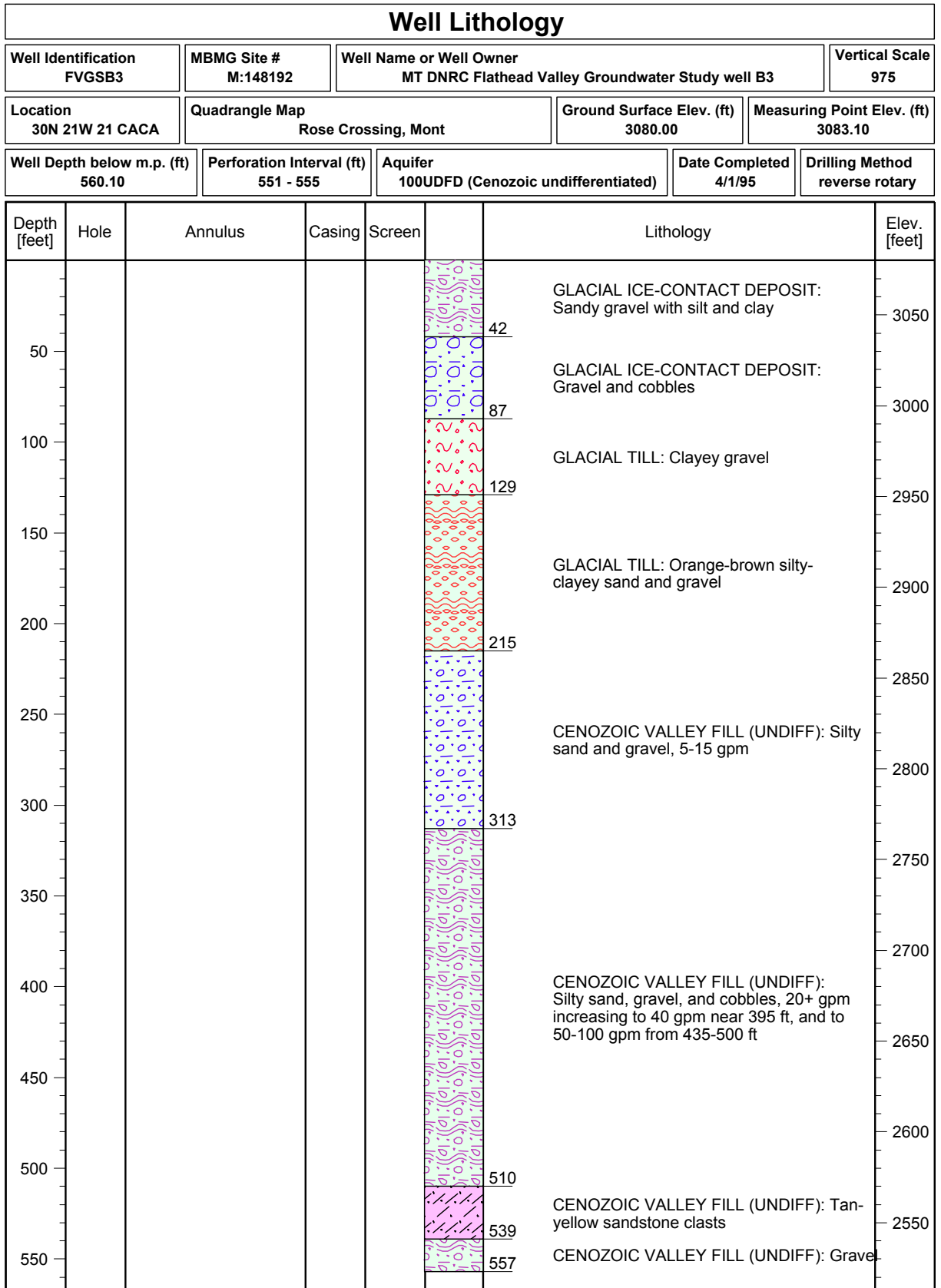




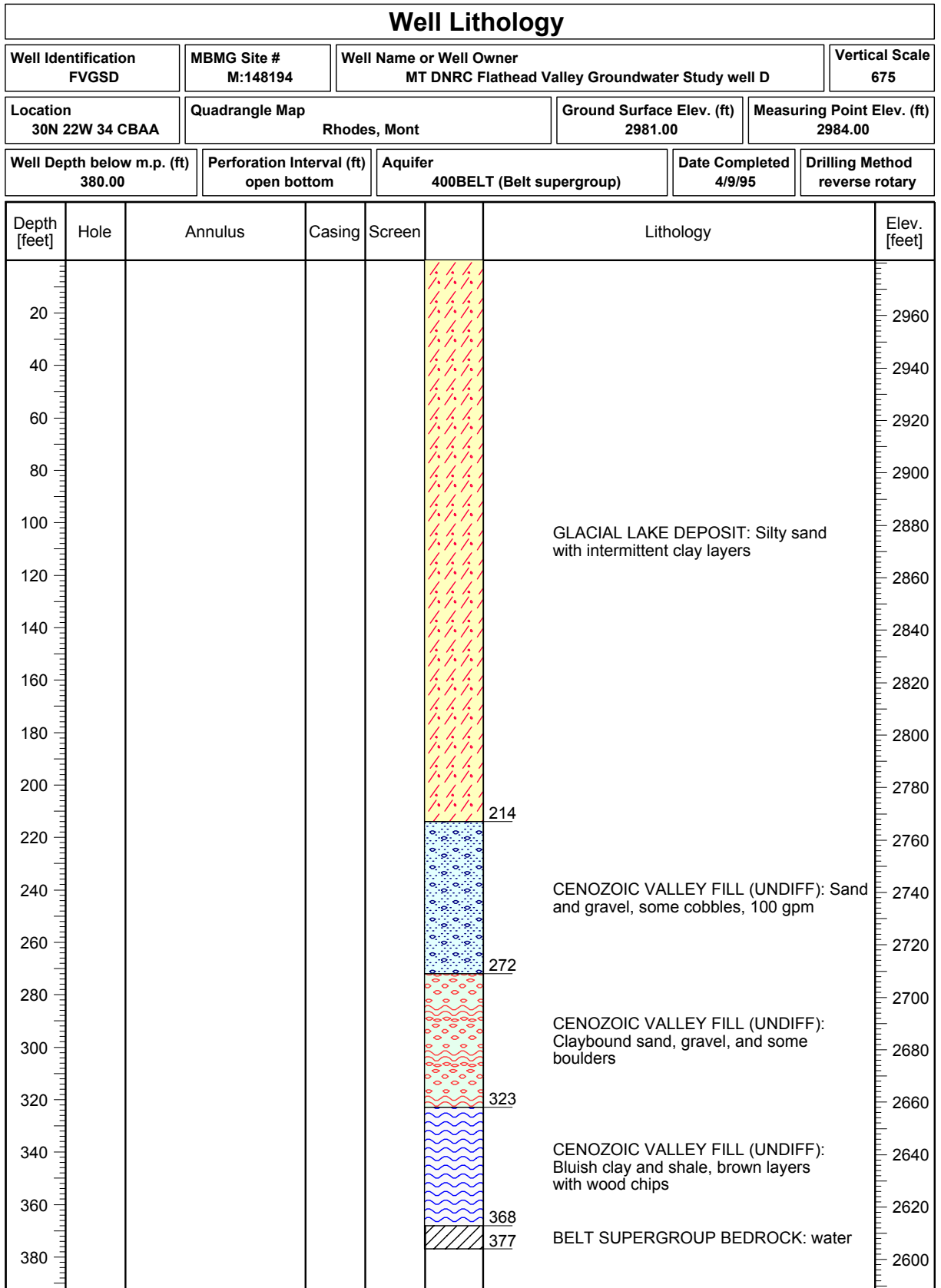








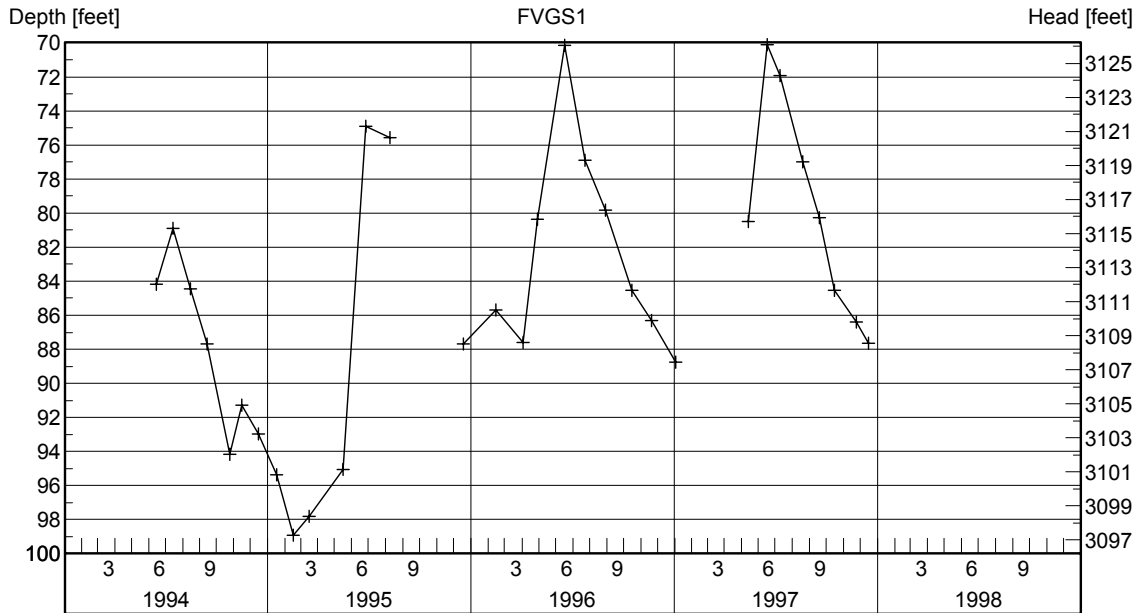
Well Lithology							
Well Identification FVGSC		MBMG Site # M:148193		Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well C			Vertical Scale 775
Location 30N 22W 36 BDCC		Quadrangle Map Rose Crossing, Mont			Ground Surface Elev. (ft) 3170.00	Measuring Point Elev. (ft) 3172.20	
Well Depth below m.p. (ft) 439.20		Perforation Interval (ft) open bottom		Aquifer 100UDFD (Cenozoic undifferentiated)		Date Completed 3/10/95	Drilling Method reverse rotary
Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]
50						GLACIAL TILL: Silty gravel and cobbles, some boulder lenses	3150
							3100
100							3050
150							3000
200						GLACIAL TILL: Sandy gravel	2950
250							2900
					260		
					282		
300						CENOZOIC VALLEY FILL (UNDIFF): Silty gravel and sand, water from 332-440 ft	2850
350							2800
400							2750
					437		



Appendix B1. Groundwater Hydrographs and Groundwater-Level Data

Groundwater Hydrograph

Well Identification FVGS1	MBMG Site # M:158200	Well Name or Well Owner Doug Davis	
Location 30N 20W 23 CCCA	Ground Surface Elev. (ft) 3195.00	Measuring Point Elev. (ft) 3196.20	Well Depth below m.p. (ft) 171.20

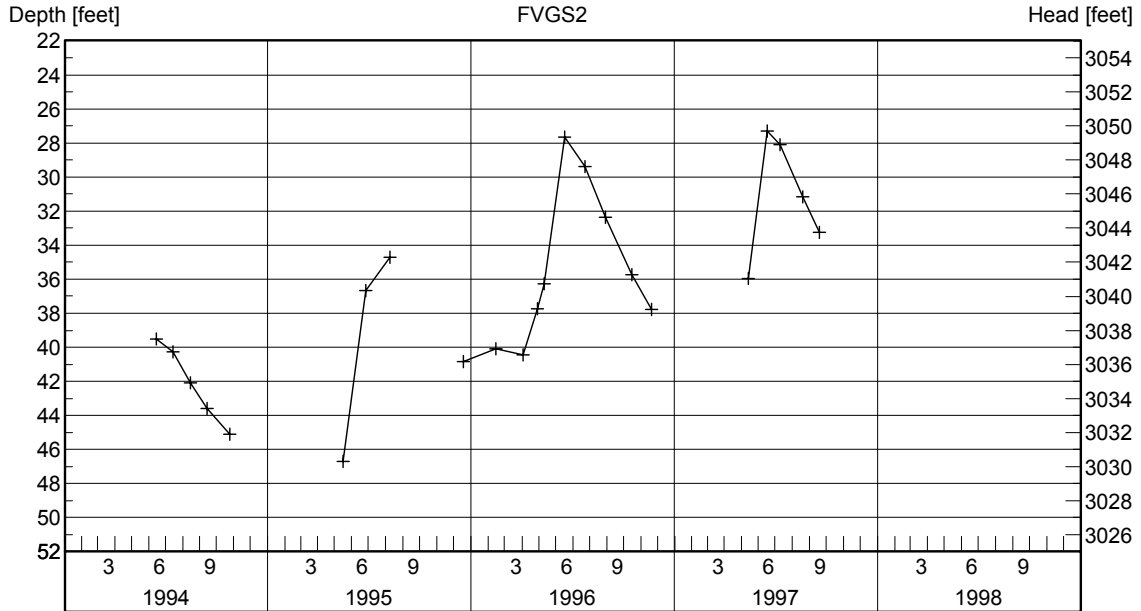


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	84.20	3112.00	11/21/96	86.31	3109.89						
07/15/94	80.89	3115.31	01/03/97	88.77	3107.43						
08/15/94	84.46	3111.74	05/14/97	80.49	3115.71						
09/14/94	87.67	3108.53	06/17/97	70.09	3126.11						
10/24/94	94.18	3102.02	07/09/97	71.92	3124.28						
11/15/94	91.26	3104.94	08/19/97	76.97	3119.23						
12/15/94	92.95	3103.25	09/18/97	80.26	3115.94						
01/17/95	95.35	3100.85	10/15/97	84.55	3111.65						
02/15/95	98.90	3097.30	11/24/97	86.40	3109.80						
03/16/95	97.82	3098.38	12/15/97	87.65	3108.55						
05/16/95	95.06	3101.14									
06/26/95	74.91	3121.29									
08/08/95	75.58	3120.62									
12/18/95	87.68	3108.52									
02/14/96	85.69	3110.51									
04/03/96	87.61	3108.59									
04/29/96	80.38	3115.82									
06/17/96	70.14	3126.06									
07/24/96	76.90	3119.30									
08/30/96	79.84	3116.36									
10/16/96	84.52	3111.68									

Groundwater Hydrograph

Well Identification FVGS2	MBMG Site # M:085703	Well Name or Well Owner Henry Belston	
Location 30N 20W 23 CBCB	Ground Surface Elev. (ft) 3080.00	Measuring Point Elev. (ft) 3077.00	Well Depth below m.p. (ft) 68.00

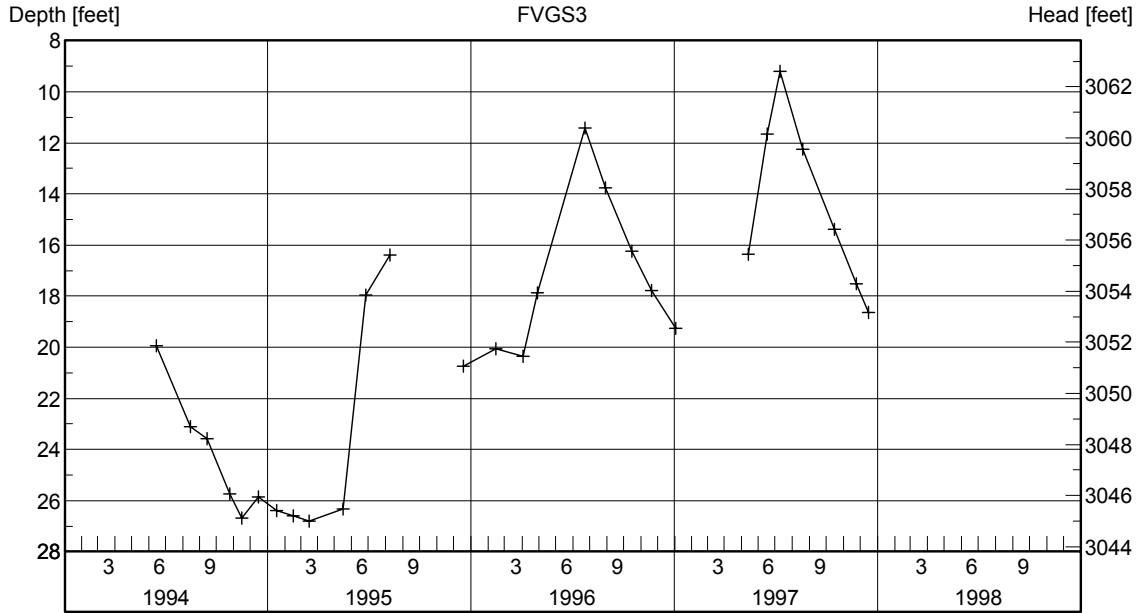


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	39.50	3037.50	08/19/97	31.18	3045.82						
07/14/94	40.25	3036.75	09/18/97	33.25	3043.75						
08/15/94	42.10	3034.90									
09/14/94	43.60	3033.40									
10/24/94	45.10	3031.90									
05/16/95	46.68	3030.32									
06/26/95	36.68	3040.32									
08/08/95	34.71	3042.29									
12/18/95	40.85	3036.15									
02/14/96	40.10	3036.90									
04/03/96	40.42	3036.58									
04/29/96	37.72	3039.28									
05/12/96	36.27	3040.73									
06/17/96	27.65	3049.35									
07/24/96	29.40	3047.60									
08/30/96	32.38	3044.62									
10/16/96	35.73	3041.27									
11/21/96	37.79	3039.21									
05/14/97	35.95	3041.05									
06/17/97	27.31	3049.69									
07/09/97	28.11	3048.89									

Groundwater Hydrograph

Well Identification FVGS3	MBMG Site # M:085693	Well Name or Well Owner Ralph Desteunder	
Location 30N 20W 22 DBDD	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3071.80	Well Depth below m.p. (ft) 446.80

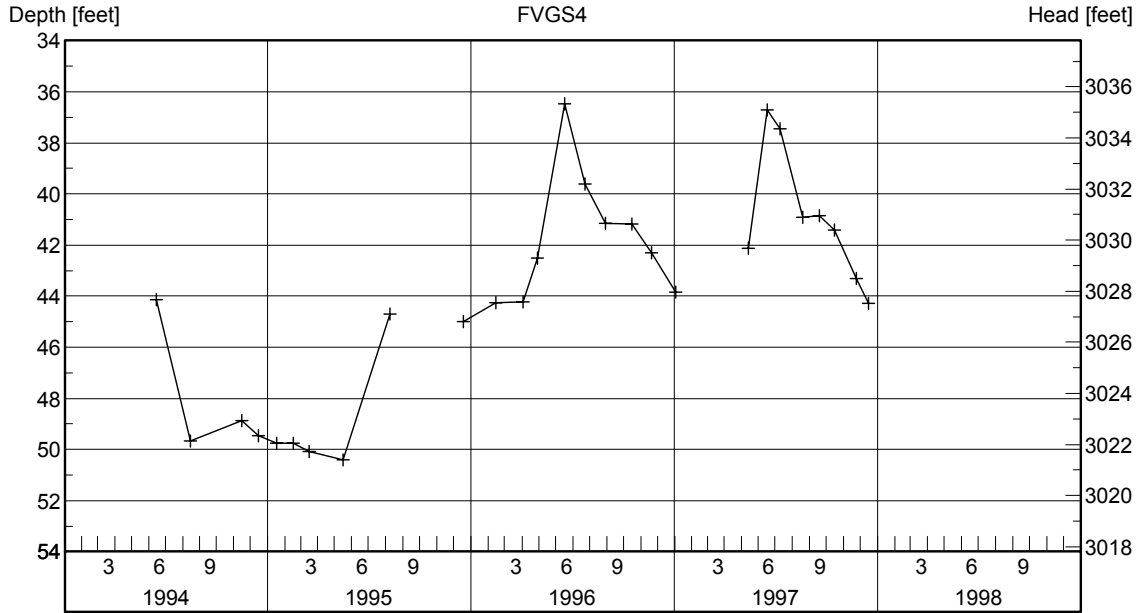


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	19.95	3051.85	05/14/97	16.36	3055.44						
08/15/94	23.10	3048.70	06/17/97	11.65	3060.15						
09/14/94	23.57	3048.23	07/09/97	9.19	3062.61						
10/24/94	25.74	3046.06	08/19/97	12.26	3059.54						
11/15/94	26.68	3045.12	10/15/97	15.37	3056.43						
12/15/94	25.85	3045.95	11/24/97	17.51	3054.29						
01/17/95	26.40	3045.40	12/15/97	18.63	3053.17						
02/15/95	26.60	3045.20									
03/16/95	26.81	3044.99									
05/16/95	26.33	3045.47									
06/26/95	17.97	3053.83									
08/08/95	16.40	3055.40									
12/18/95	20.73	3051.07									
02/14/96	20.05	3051.75									
04/03/96	20.35	3051.45									
04/29/96	17.87	3053.93									
07/24/96	11.41	3060.39									
08/30/96	13.75	3058.05									
10/16/96	16.25	3055.55									
11/21/96	17.77	3054.03									
01/03/97	19.26	3052.54									

Groundwater Hydrograph

Well Identification FVGS4	MBMG Site # M:085689	Well Name or Well Owner Lorin Turner	
Location 30N 20W 22 CDAC	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3071.80	Well Depth below m.p. (ft) 309.80

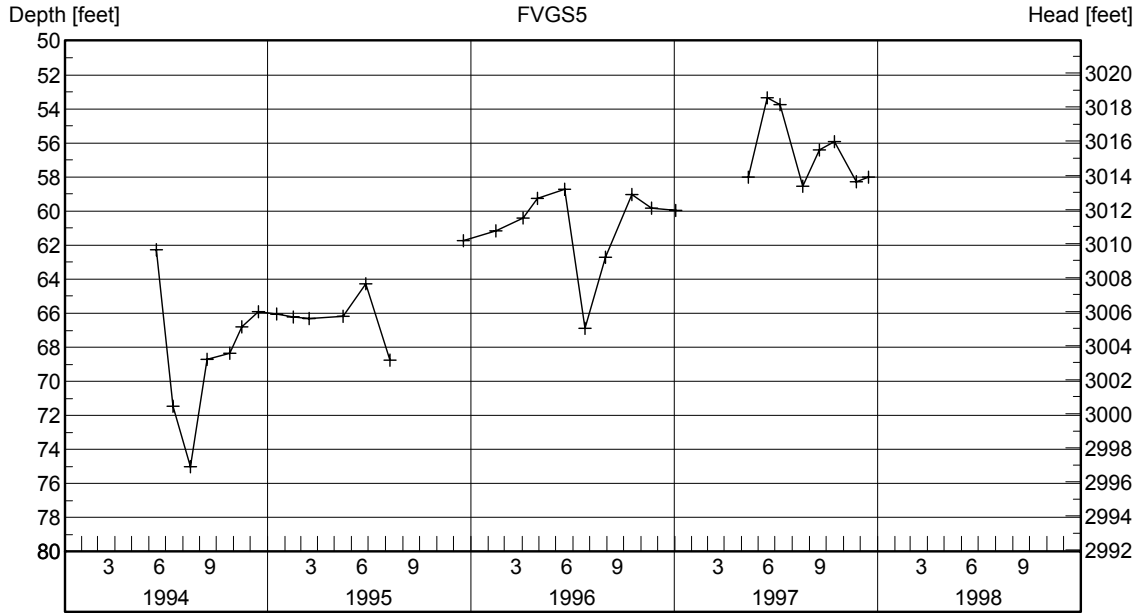


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	44.14	3027.66	07/09/97	37.46	3034.34						
08/15/94	49.67	3022.13	08/19/97	40.92	3030.88						
11/15/94	48.86	3022.94	09/18/97	40.84	3030.96						
12/15/94	49.45	3022.35	10/15/97	41.42	3030.38						
01/17/95	49.76	3022.04	11/24/97	43.31	3028.49						
02/15/95	49.75	3022.05	12/15/97	44.28	3027.52						
03/16/95	50.07	3021.73									
05/16/95	50.42	3021.38									
08/08/95	44.70	3027.10									
12/18/95	44.98	3026.82									
02/14/96	44.26	3027.54									
04/03/96	44.21	3027.59									
04/29/96	42.51	3029.29									
06/17/96	36.48	3035.32									
07/24/96	39.61	3032.19									
08/30/96	41.15	3030.65									
10/16/96	41.16	3030.64									
11/21/96	42.30	3029.50									
01/03/97	43.85	3027.95									
05/14/97	42.13	3029.67									
06/17/97	36.71	3035.09									

Groundwater Hydrograph

Well Identification FVGS5	MBMG Site # M:122756	Well Name or Well Owner Jeff Sternad	
Location 30N 20W 22 CBAC	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3071.90	Well Depth below m.p. (ft) 211.90

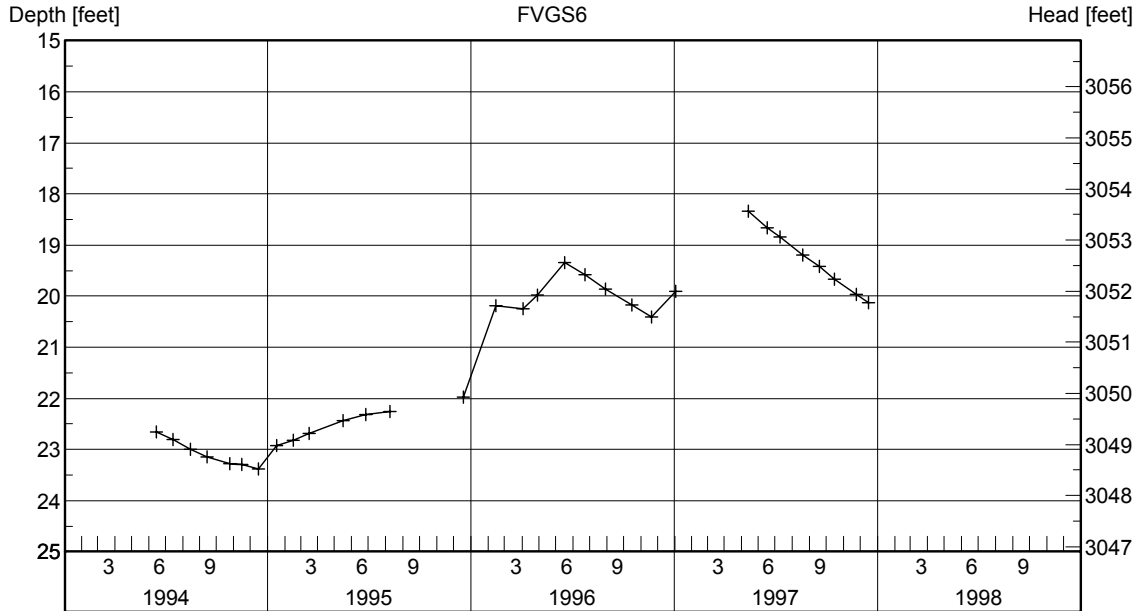


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	62.25	3009.65	11/21/96	59.81	3012.09						
07/14/94	71.45	3000.45	01/03/97	59.96	3011.94						
08/15/94	74.99	2996.91	05/14/97	58.02	3013.88						
09/14/94	68.71	3003.19	06/17/97	53.33	3018.57						
10/24/94	68.35	3003.55	07/09/97	53.76	3018.14						
11/15/94	66.80	3005.10	08/19/97	58.55	3013.35						
12/15/94	65.89	3006.01	09/18/97	56.40	3015.50						
01/17/95	66.05	3005.85	10/15/97	55.94	3015.96						
02/15/95	66.21	3005.69	11/24/97	58.28	3013.62						
03/16/95	66.29	3005.61	12/15/97	58.03	3013.87						
05/16/95	66.17	3005.73									
06/26/95	64.25	3007.65									
08/08/95	68.74	3003.16									
12/18/95	61.73	3010.17									
02/14/96	61.16	3010.74									
04/03/96	60.42	3011.48									
04/29/96	59.24	3012.66									
06/17/96	58.72	3013.18									
07/24/96	66.90	3005.00									
08/30/96	62.71	3009.19									
10/16/96	59.03	3012.87									

Groundwater Hydrograph

Well Identification FVGS6	MBMG Site # M:085669	Well Name or Well Owner Joe Nagel	
Location 30N 20W 22 CBCC	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3071.90	Well Depth below m.p. (ft) 41.90

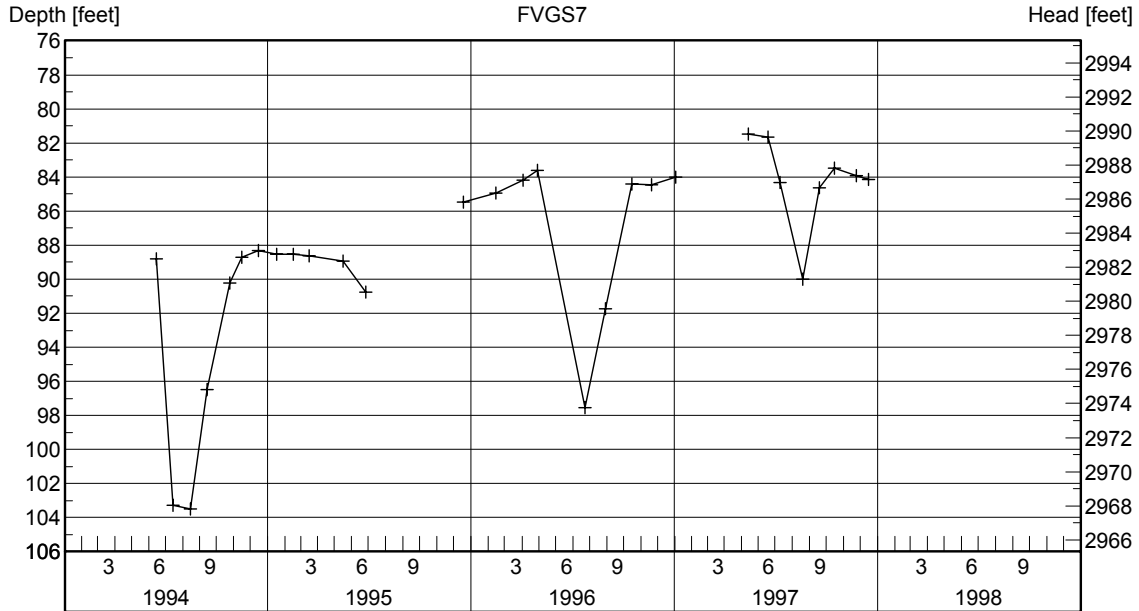


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	22.65	3049.25	11/21/96	20.40	3051.50						
07/14/94	22.81	3049.09	01/03/97	19.91	3051.99						
08/15/94	23.00	3048.90	05/14/97	18.33	3053.57						
09/14/94	23.14	3048.76	06/17/97	18.66	3053.24						
10/24/94	23.27	3048.63	07/09/97	18.84	3053.06						
11/15/94	23.29	3048.61	08/19/97	19.20	3052.70						
12/15/94	23.38	3048.52	09/18/97	19.41	3052.49						
01/17/95	22.92	3048.98	10/15/97	19.66	3052.24						
02/15/95	22.82	3049.08	11/24/97	19.96	3051.94						
03/16/95	22.69	3049.21	12/15/97	20.12	3051.78						
05/16/95	22.43	3049.47									
06/26/95	22.31	3049.59									
08/08/95	22.26	3049.64									
12/18/95	21.98	3049.92									
02/14/96	20.18	3051.72									
04/03/96	20.24	3051.66									
04/29/96	19.98	3051.92									
06/17/96	19.34	3052.56									
07/24/96	19.58	3052.32									
08/30/96	19.86	3052.04									
10/16/96	20.17	3051.73									

Groundwater Hydrograph

Well Identification FVGS7	MBMG Site # M:085649	Well Name or Well Owner Harold Samples	
Location 30N 20W 21 CADC	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3071.30	Well Depth below m.p. (ft) 161.30

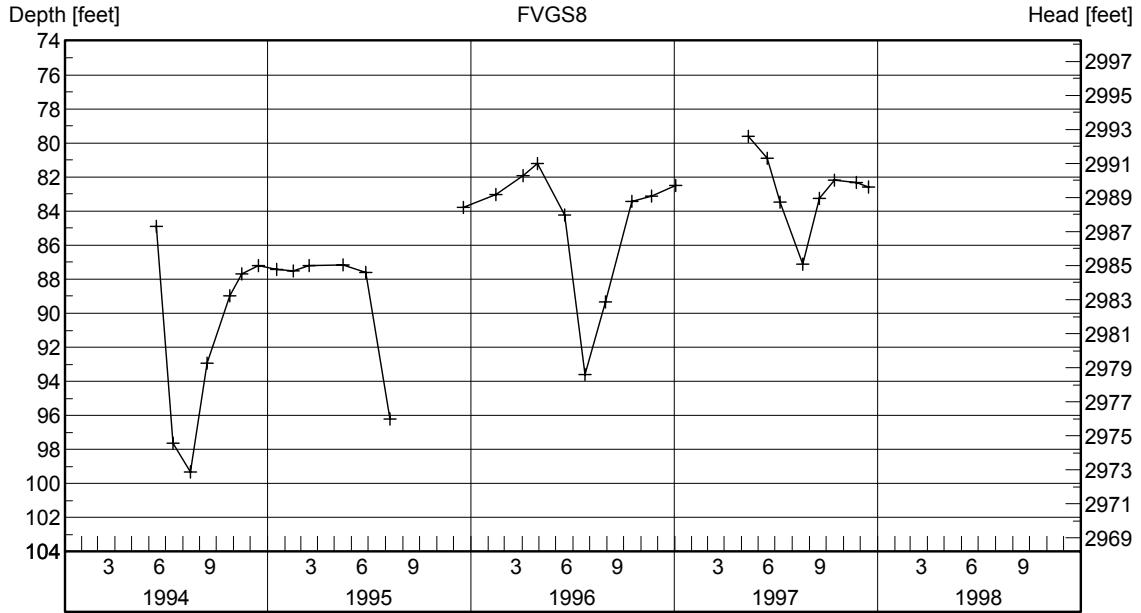


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	88.81	2982.49	05/14/97	81.46	2989.84						
07/14/94	103.29	2968.01	06/18/97	81.64	2989.66						
08/15/94	103.48	2967.82	07/09/97	84.33	2986.97						
09/14/94	96.50	2974.80	08/19/97	89.99	2981.31						
10/24/94	90.23	2981.07	09/18/97	84.61	2986.69						
11/15/94	88.71	2982.59	10/15/97	83.48	2987.82						
12/15/94	88.32	2982.98	11/24/97	83.93	2987.37						
01/17/95	88.55	2982.75	12/15/97	84.16	2987.14						
02/15/95	88.52	2982.78									
03/16/95	88.63	2982.67									
05/16/95	88.94	2982.36									
06/26/95	90.74	2980.56									
12/18/95	85.48	2985.82									
02/14/96	84.95	2986.35									
04/03/96	84.20	2987.10									
04/29/96	83.59	2987.71									
07/24/96	97.56	2973.74									
08/30/96	91.73	2979.57									
10/16/96	84.41	2986.89									
11/21/96	84.47	2986.83									
01/03/97	84.02	2987.28									

Groundwater Hydrograph

Well Identification FVGS8	MBMG Site # M:085652	Well Name or Well Owner Maurice Johnson	
Location 30N 20W 21 CBCB	Ground Surface Elev. (ft) 3070.00	Measuring Point Elev. (ft) 3072.20	Well Depth below m.p. (ft) 185.20

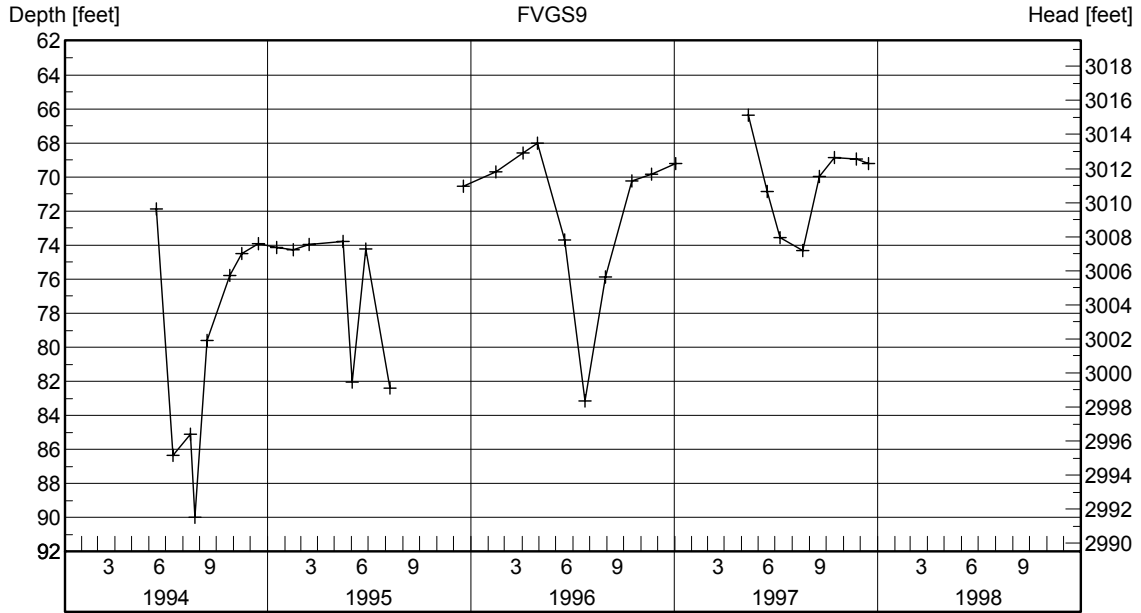


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	84.90	2987.30	11/21/96	83.13	2989.07						
07/14/94	97.64	2974.56	01/03/97	82.51	2989.69						
08/15/94	99.30	2972.90	05/14/97	79.63	2992.57						
09/14/94	92.94	2979.26	06/17/97	80.89	2991.31						
10/24/94	89.00	2983.20	07/09/97	83.47	2988.73						
11/15/94	87.71	2984.49	08/19/97	87.12	2985.08						
12/15/94	87.19	2985.01	09/18/97	83.26	2988.94						
01/17/95	87.41	2984.79	10/15/97	82.17	2990.03						
02/15/95	87.53	2984.67	11/24/97	82.34	2989.86						
03/16/95	87.21	2984.99	12/15/97	82.59	2989.61						
05/16/95	87.17	2985.03									
06/26/95	87.58	2984.62									
08/08/95	96.23	2975.97									
12/18/95	83.79	2988.41									
02/14/96	83.05	2989.15									
04/03/96	81.91	2990.29									
04/29/96	81.21	2990.99									
06/17/96	84.24	2987.96									
07/24/96	93.61	2978.59									
08/30/96	89.34	2982.86									
10/16/96	83.44	2988.76									

Groundwater Hydrograph

Well Identification FVGS9	MBMG Site # M:085628	Well Name or Well Owner Tom Henneberg	
Location 30N 20W 20 DCCA	Ground Surface Elev. (ft) 3080.00	Measuring Point Elev. (ft) 3081.50	Well Depth below m.p. (ft) 150.50

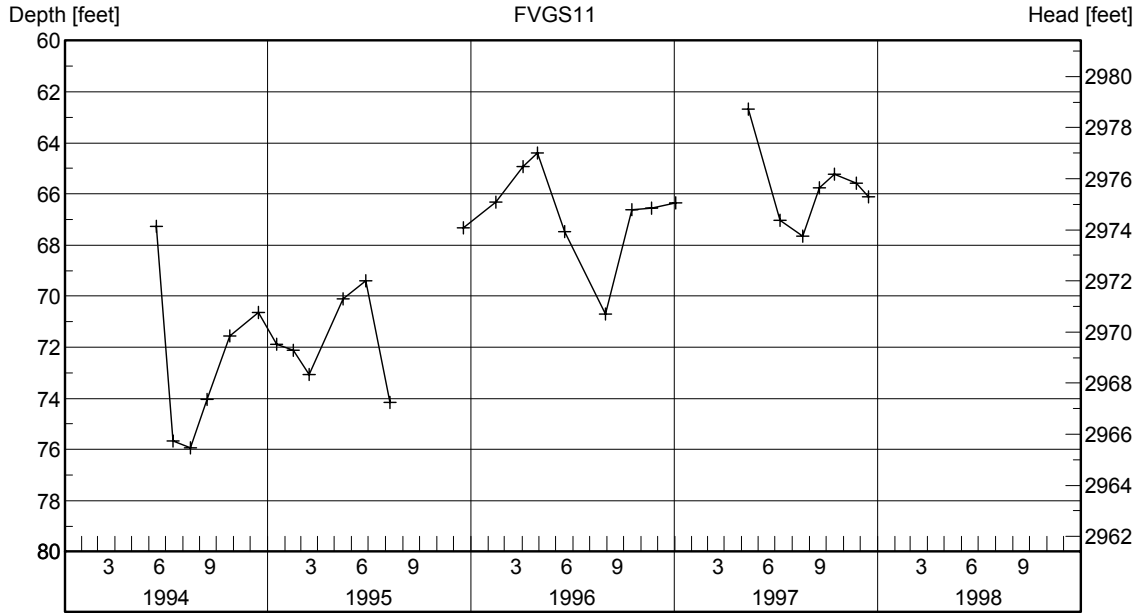


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	71.89	3009.61	08/30/96	75.86	3005.64						
07/14/94	86.32	2995.18	10/16/96	70.25	3011.25						
08/15/94	85.08	2996.42	11/21/96	69.85	3011.65						
08/23/94	90.00	2991.50	01/03/97	69.21	3012.29						
09/14/94	79.58	3001.92	05/14/97	66.36	3015.14						
10/24/94	75.76	3005.74	06/17/97	70.84	3010.66						
11/15/94	74.49	3007.01	07/09/97	73.54	3007.96						
12/15/94	73.92	3007.58	08/19/97	74.33	3007.17						
01/17/95	74.13	3007.37	09/18/97	69.96	3011.54						
02/15/95	74.25	3007.25	10/15/97	68.86	3012.64						
03/16/95	73.95	3007.55	11/24/97	68.96	3012.54						
05/16/95	73.79	3007.71	12/15/97	69.21	3012.29						
06/01/95	82.02	2999.48									
06/26/95	74.24	3007.26									
08/08/95	82.37	2999.13									
12/18/95	70.53	3010.97									
02/14/96	69.72	3011.78									
04/03/96	68.58	3012.92									
04/29/96	68.02	3013.48									
06/17/96	73.70	3007.80									
07/24/96	83.13	2998.37									

Groundwater Hydrograph

Well Identification FVGS11	MBMG Site # M:139648	Well Name or Well Owner Lewis Becker	
Location 30N 20W 20 CBCB	Ground Surface Elev. (ft) 3040.00	Measuring Point Elev. (ft) 3041.40	Well Depth below m.p. (ft) 149.40

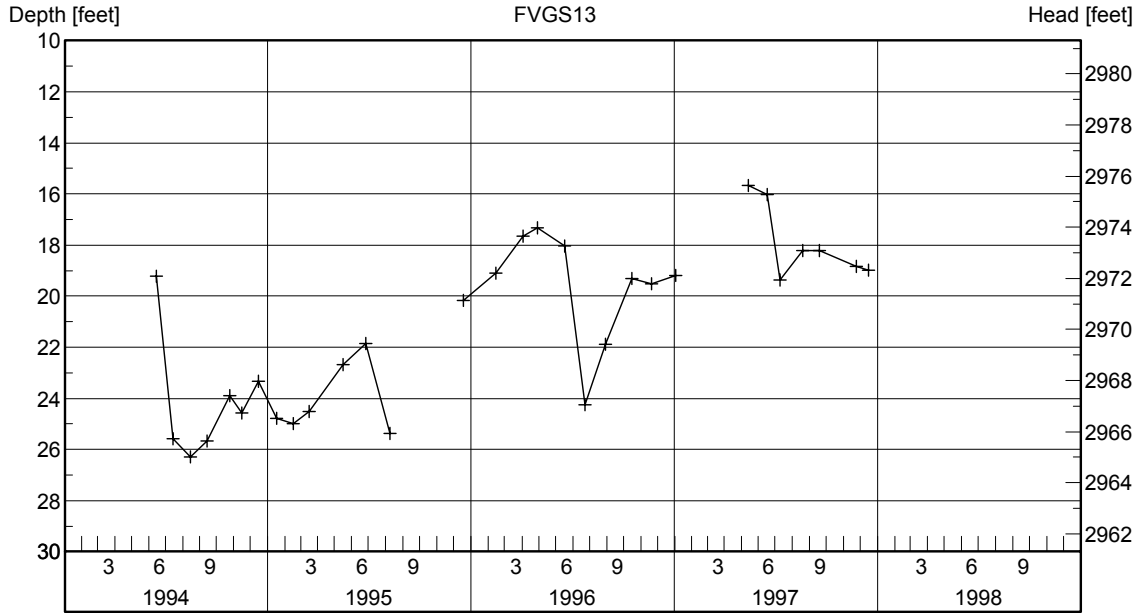


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	67.26	2974.14	05/14/97	62.67	2978.73						
07/14/94	75.68	2965.72	07/09/97	67.02	2974.38						
08/15/94	75.92	2965.48	08/19/97	67.66	2973.74						
09/14/94	74.03	2967.37	09/18/97	65.76	2975.64						
10/24/94	71.54	2969.86	10/15/97	65.21	2976.19						
12/15/94	70.65	2970.75	11/24/97	65.59	2975.81						
01/17/95	71.89	2969.51	12/15/97	66.10	2975.30						
02/15/95	72.13	2969.27									
03/16/95	73.05	2968.35									
05/16/95	70.11	2971.29									
06/26/95	69.40	2972.00									
08/08/95	74.17	2967.23									
12/18/95	67.31	2974.09									
02/14/96	66.31	2975.09									
04/03/96	64.94	2976.46									
04/29/96	64.38	2977.02									
06/17/96	67.46	2973.94									
08/30/96	70.70	2970.70									
10/16/96	66.61	2974.79									
11/21/96	66.54	2974.86									
01/03/97	66.36	2975.04									

Groundwater Hydrograph

Well Identification FVGS13	MBMG Site # M:085605	Well Name or Well Owner Ben Bowerman	
Location 30N 20W 19 CACA	Ground Surface Elev. (ft) 2990.00	Measuring Point Elev. (ft) 2991.30	Well Depth below m.p. (ft) 101.30

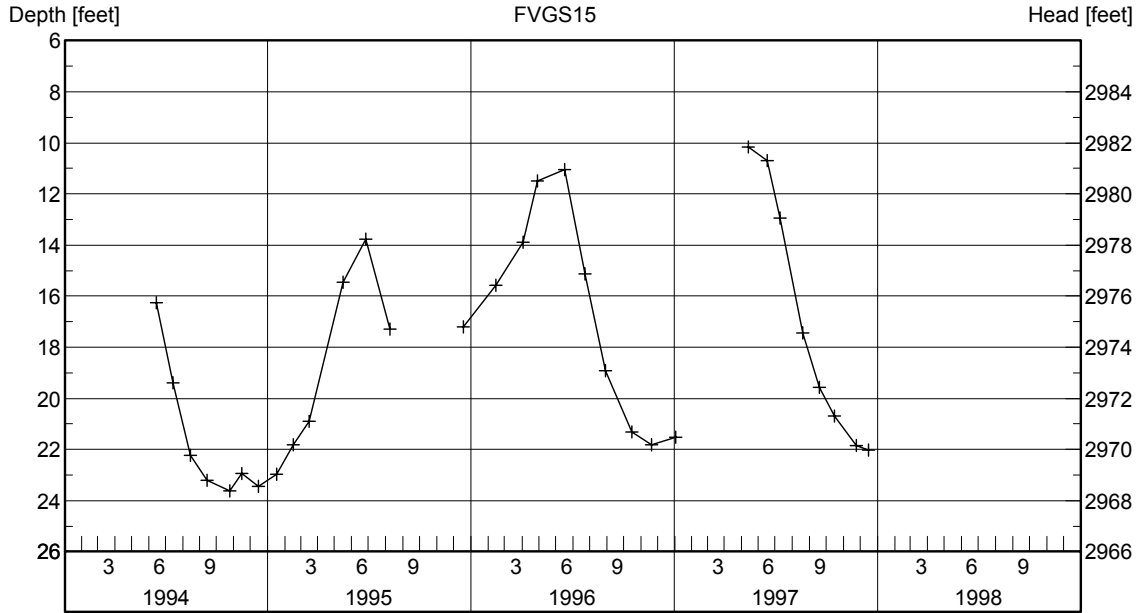


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	19.23	2972.07	11/21/96	19.50	2971.80						
07/14/94	25.57	2965.73	01/03/97	19.20	2972.10						
08/15/94	26.30	2965.00	05/14/97	15.66	2975.64						
09/14/94	25.67	2965.63	06/17/97	16.01	2975.29						
10/24/94	23.90	2967.40	07/09/97	19.35	2971.95						
11/15/94	24.57	2966.73	08/19/97	18.22	2973.08						
12/15/94	23.34	2967.96	09/18/97	18.20	2973.10						
01/17/95	24.78	2966.52	11/24/97	18.82	2972.48						
02/15/95	25.00	2966.30	12/15/97	18.99	2972.31						
03/16/95	24.52	2966.78									
05/16/95	22.68	2968.62									
06/26/95	21.85	2969.45									
08/08/95	25.36	2965.94									
12/18/95	20.16	2971.14									
02/14/96	19.10	2972.20									
04/03/96	17.64	2973.66									
04/29/96	17.33	2973.97									
06/17/96	18.02	2973.28									
07/24/96	24.24	2967.06									
08/30/96	21.88	2969.42									
10/16/96	19.29	2972.01									

Groundwater Hydrograph

Well Identification FVGS15	MBMG Site # M:133133	Well Name or Well Owner Dan Peek	
Location 30N 21W 24 CCCC	Ground Surface Elev. (ft) 2990.00	Measuring Point Elev. (ft) 2992.00	Well Depth below m.p. (ft) 32.00

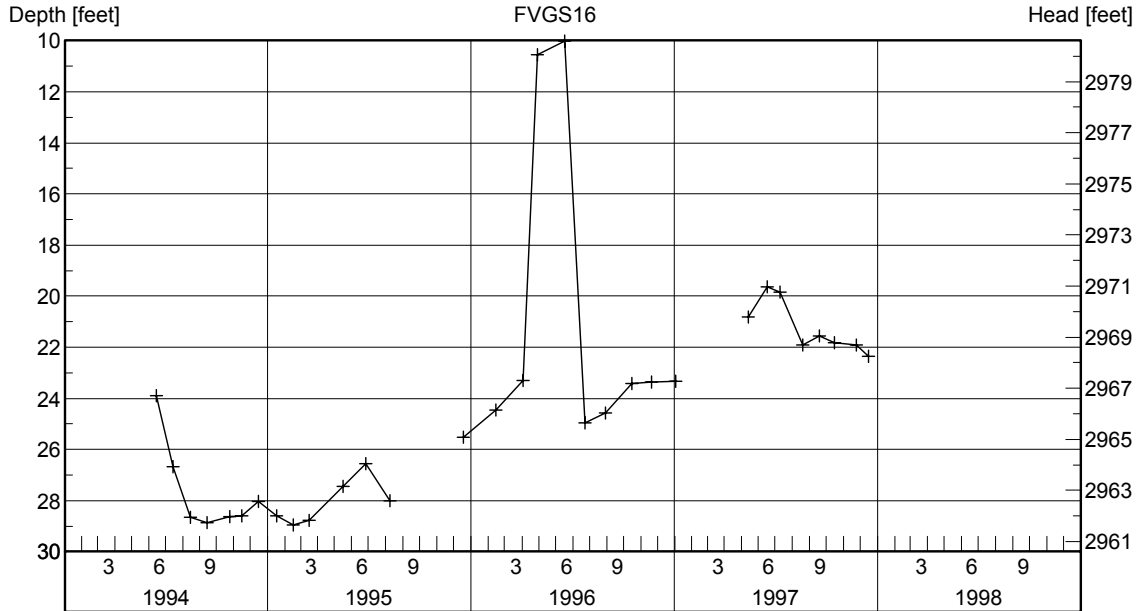


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	16.25	2975.75	11/21/96	21.81	2970.19						
07/14/94	19.39	2972.61	01/03/97	21.51	2970.49						
08/15/94	22.22	2969.78	05/14/97	10.16	2981.84						
09/14/94	23.20	2968.80	06/17/97	10.69	2981.31						
10/24/94	23.62	2968.38	07/09/97	12.93	2979.07						
11/15/94	22.95	2969.05	08/19/97	17.43	2974.57						
12/15/94	23.44	2968.56	09/18/97	19.57	2972.43						
01/17/95	22.96	2969.04	10/15/97	20.70	2971.30						
02/15/95	21.80	2970.20	11/24/97	21.84	2970.16						
03/16/95	20.91	2971.09	12/15/97	22.02	2969.98						
05/16/95	15.44	2976.56									
06/26/95	13.76	2978.24									
08/08/95	17.30	2974.70									
12/18/95	17.20	2974.80									
02/14/96	15.58	2976.42									
04/03/96	13.88	2978.12									
04/29/96	11.50	2980.50									
06/17/96	11.05	2980.95									
07/24/96	15.13	2976.87									
08/30/96	18.92	2973.08									
10/16/96	21.31	2970.69									

Groundwater Hydrograph

Well Identification FVGS16	MBMG Site # M:158201	Well Name or Well Owner Dixie Lawrence	
Location 30N 21W 24 CBCA	Ground Surface Elev. (ft) 2990.00	Measuring Point Elev. (ft) 2990.60	Well Depth below m.p. (ft) 260.60

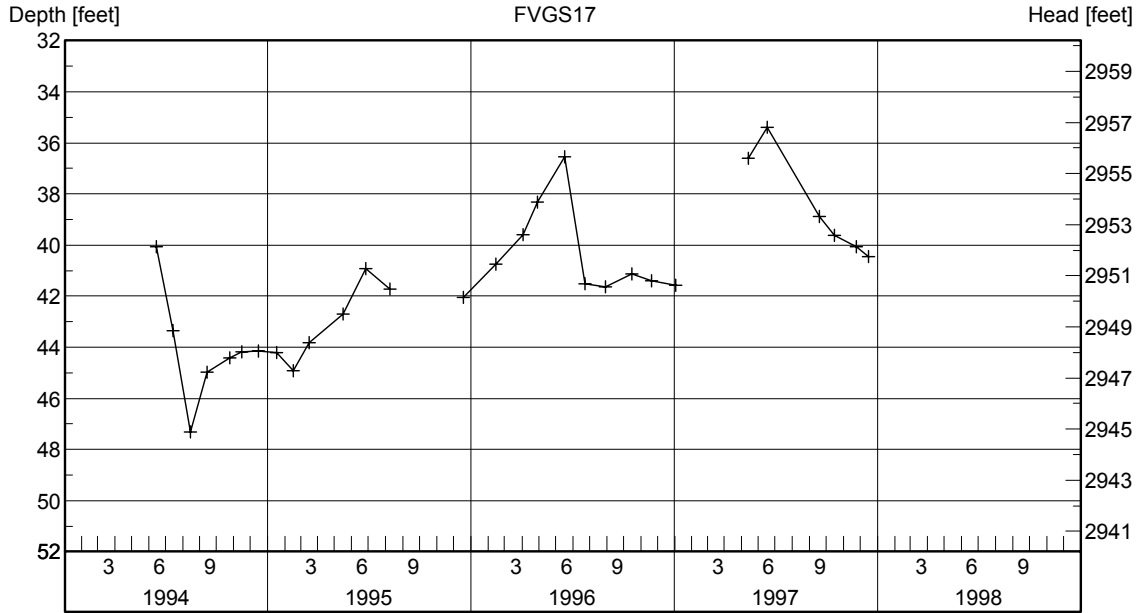


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	23.89	2966.71	11/21/96	23.35	2967.25						
07/14/94	26.68	2963.92	01/03/97	23.34	2967.26						
08/15/94	28.65	2961.95	05/14/97	20.80	2969.80						
09/14/94	28.87	2961.73	06/17/97	19.62	2970.98						
10/24/94	28.62	2961.98	07/09/97	19.85	2970.75						
11/15/94	28.58	2962.02	08/19/97	21.92	2968.68						
12/15/94	28.02	2962.58	09/18/97	21.54	2969.06						
01/17/95	28.58	2962.02	10/15/97	21.82	2968.78						
02/15/95	28.94	2961.66	11/24/97	21.91	2968.69						
03/16/95	28.78	2961.82	12/15/97	22.36	2968.24						
05/16/95	27.45	2963.15									
06/26/95	26.55	2964.05									
08/08/95	28.01	2962.59									
12/18/95	25.52	2965.08									
02/14/96	24.44	2966.16									
04/03/96	23.29	2967.31									
04/29/96	10.54	2980.06									
06/17/96	10.01	2980.59									
07/24/96	24.96	2965.64									
08/30/96	24.57	2966.03									
10/16/96	23.41	2967.19									

Groundwater Hydrograph

Well Identification FVGS17	MBMG Site # M:086238	Well Name or Well Owner Tom Chestnut	
Location 30N 21W 23 CDCD	Ground Surface Elev. (ft) 2990.00	Measuring Point Elev. (ft) 2992.20	Well Depth below m.p. (ft) 171.20

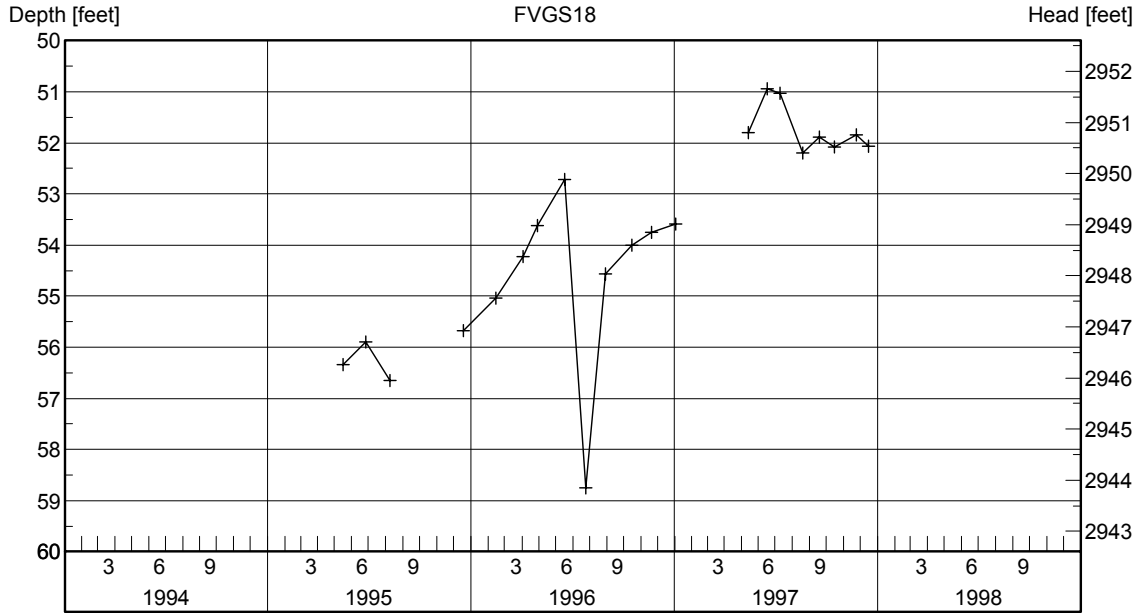


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	40.05	2952.15	11/21/96	41.40	2950.80						
07/14/94	43.35	2948.85	01/03/97	41.57	2950.63						
08/15/94	47.31	2944.89	05/14/97	36.60	2955.60						
09/14/94	44.96	2947.24	06/17/97	35.38	2956.82						
10/24/94	44.42	2947.78	09/18/97	38.89	2953.31						
11/15/94	44.18	2948.02	10/15/97	39.63	2952.57						
12/15/94	44.15	2948.05	11/24/97	40.05	2952.15						
01/17/95	44.19	2948.01	12/15/97	40.45	2951.75						
02/15/95	44.90	2947.30									
03/16/95	43.82	2948.38									
05/16/95	42.71	2949.49									
06/26/95	40.92	2951.28									
08/08/95	41.73	2950.47									
12/18/95	42.05	2950.15									
02/14/96	40.75	2951.45									
04/03/96	39.59	2952.61									
04/29/96	38.31	2953.89									
06/17/96	36.55	2955.65									
07/24/96	41.50	2950.70									
08/30/96	41.63	2950.57									
10/16/96	41.12	2951.08									

Groundwater Hydrograph

Well Identification FVGS18	MBMG Site # M:153005	Well Name or Well Owner Leonard Greene (SOUTH irrigation well)	
Location 30N 21W 23 CCBB	Ground Surface Elev. (ft) 3000.00	Measuring Point Elev. (ft) 3002.10	Well Depth below m.p. (ft) 623.10

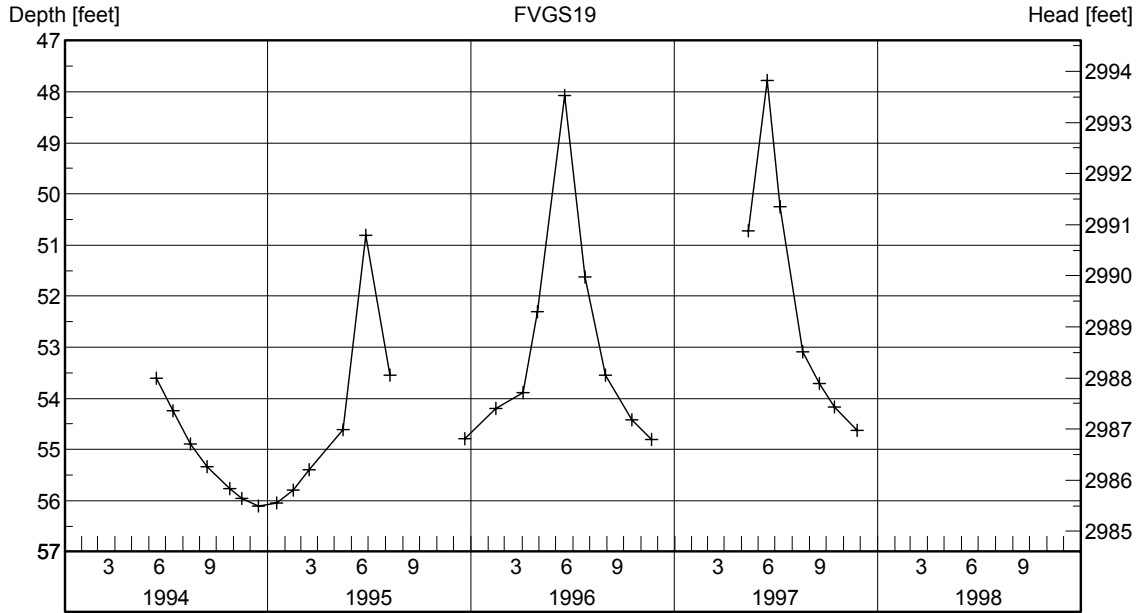


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
05/16/95	56.34	2945.76									
06/26/95	55.90	2946.20									
08/08/95	56.65	2945.45									
12/18/95	55.68	2946.42									
02/14/96	55.03	2947.07									
04/03/96	54.22	2947.88									
04/29/96	53.62	2948.48									
06/17/96	52.72	2949.38									
07/25/96	58.75	2943.35									
08/30/96	54.56	2947.54									
10/16/96	54.00	2948.10									
11/21/96	53.75	2948.35									
01/03/97	53.58	2948.52									
05/14/97	51.80	2950.30									
06/17/97	50.94	2951.16									
07/09/97	51.03	2951.07									
08/19/97	52.19	2949.91									
09/18/97	51.89	2950.21									
10/15/97	52.08	2950.02									
11/24/97	51.84	2950.26									
12/15/97	52.06	2950.04									

Groundwater Hydrograph

Well Identification FVGS19	MBMG Site # M:086220	Well Name or Well Owner James Ronald	
Location 30N 21W 22 CDAC	Ground Surface Elev. (ft) 3040.00	Measuring Point Elev. (ft) 3041.10	Well Depth below m.p. (ft) 76.10

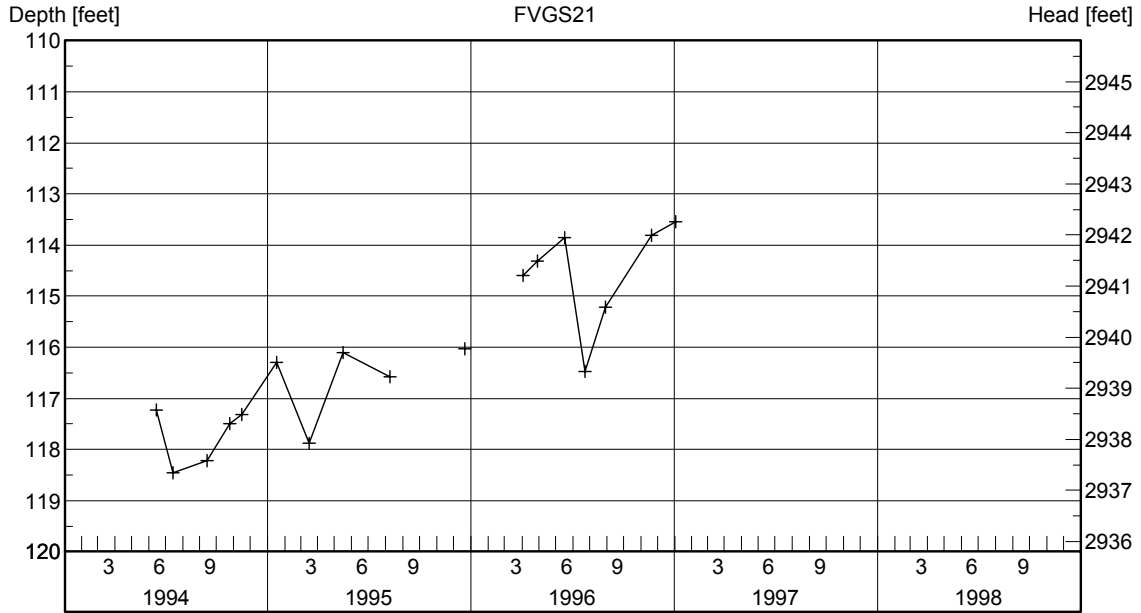


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	53.60	2987.50	11/21/96	54.81	2986.29						
07/14/94	54.24	2986.86	05/14/97	50.72	2990.38						
08/15/94	54.89	2986.21	06/17/97	47.78	2993.32						
09/14/94	55.34	2985.76	07/09/97	50.24	2990.86						
10/24/94	55.77	2985.33	08/19/97	53.08	2988.02						
11/15/94	55.95	2985.15	09/18/97	53.71	2987.39						
12/15/94	56.11	2984.99	10/15/97	54.17	2986.93						
01/17/95	56.04	2985.06	11/25/97	54.62	2986.48						
02/15/95	55.80	2985.30									
03/16/95	55.39	2985.71									
05/16/95	54.61	2986.49									
06/26/95	50.81	2990.29									
08/08/95	53.54	2987.56									
12/21/95	54.79	2986.31									
02/14/96	54.19	2986.91									
04/03/96	53.88	2987.22									
04/29/96	52.31	2988.79									
06/17/96	48.07	2993.03									
07/24/96	51.63	2989.47									
08/30/96	53.55	2987.55									
10/16/96	54.42	2986.68									

Groundwater Hydrograph

Well Identification FVGS21	MBMG Site # M:086211	Well Name or Well Owner Duane Carlson	
Location 30N 21W 21 CADC	Ground Surface Elev. (ft) 3055.00	Measuring Point Elev. (ft) 3055.80	Well Depth below m.p. (ft) 402.80

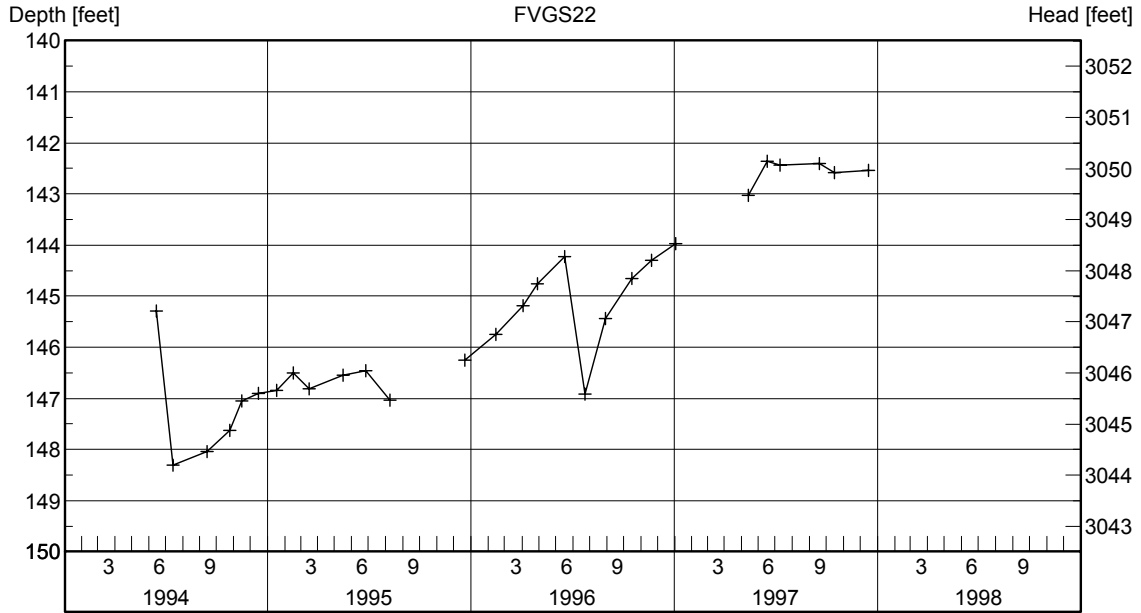


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	117.22	2938.58									
07/14/94	118.45	2937.35									
09/14/94	118.22	2937.58									
10/24/94	117.50	2938.30									
11/15/94	117.32	2938.48									
01/17/95	116.30	2939.50									
03/16/95	117.88	2937.92									
05/16/95	116.10	2939.70									
08/08/95	116.58	2939.22									
12/21/95	116.03	2939.77									
04/03/96	114.60	2941.20									
04/29/96	114.31	2941.49									
06/17/96	113.85	2941.95									
07/24/96	116.47	2939.33									
08/30/96	115.21	2940.59									
11/21/96	113.81	2941.99									
01/03/97	113.55	2942.25									

Groundwater Hydrograph

Well Identification FVGS22	MBMG Site # M:086209	Well Name or Well Owner Keith Svee and John Eder	
Location 30N 21W 21 CABB	Ground Surface Elev. (ft) 3190.00	Measuring Point Elev. (ft) 3192.00	Well Depth below m.p. (ft) 260.00

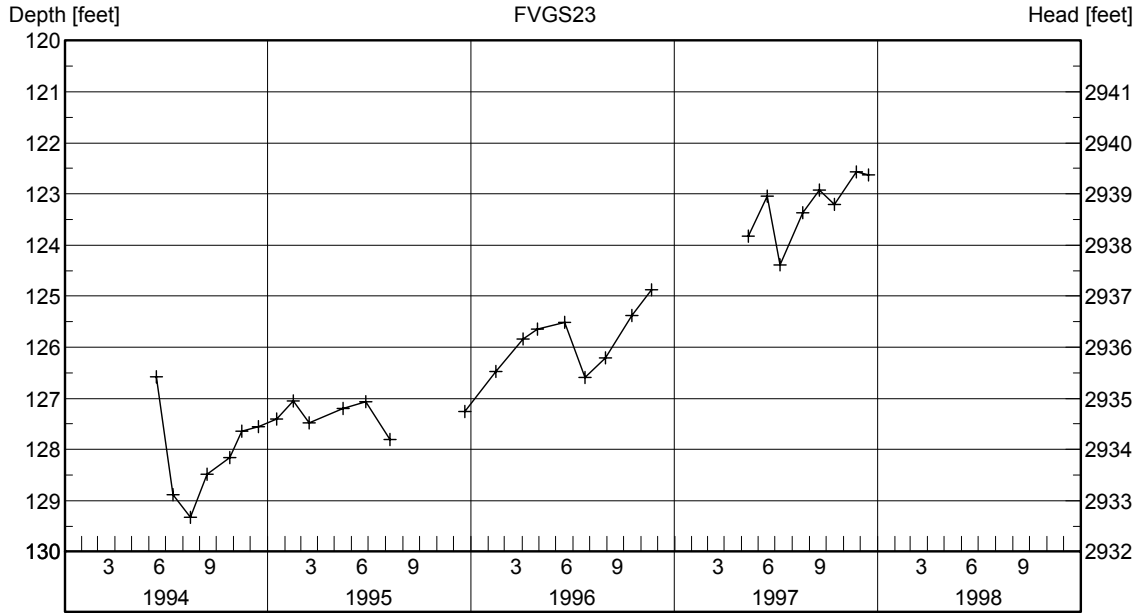


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	145.29	3046.71	01/03/97	143.97	3048.03						
07/14/94	148.30	3043.70	05/14/97	143.03	3048.97						
09/14/94	148.04	3043.96	06/17/97	142.36	3049.64						
10/24/94	147.63	3044.37	07/09/97	142.43	3049.57						
11/15/94	147.05	3044.95	09/18/97	142.41	3049.59						
12/15/94	146.90	3045.10	10/15/97	142.58	3049.42						
01/17/95	146.84	3045.16	12/15/97	142.53	3049.47						
02/15/95	146.50	3045.50									
03/16/95	146.81	3045.19									
05/16/95	146.54	3045.46									
06/26/95	146.46	3045.54									
08/08/95	147.04	3044.96									
12/21/95	146.25	3045.75									
02/14/96	145.75	3046.25									
04/03/96	145.19	3046.81									
04/29/96	144.75	3047.25									
06/17/96	144.22	3047.78									
07/24/96	146.92	3045.08									
08/30/96	145.43	3046.57									
10/16/96	144.65	3047.35									
11/21/96	144.29	3047.71									

Groundwater Hydrograph

Well Identification FVGS23	MBMG Site # M:128802	Well Name or Well Owner Robert Osler	
Location 30N 21W 21 CCDD	Ground Surface Elev. (ft) 3060.00	Measuring Point Elev. (ft) 3061.50	Well Depth below m.p. (ft) 203.50

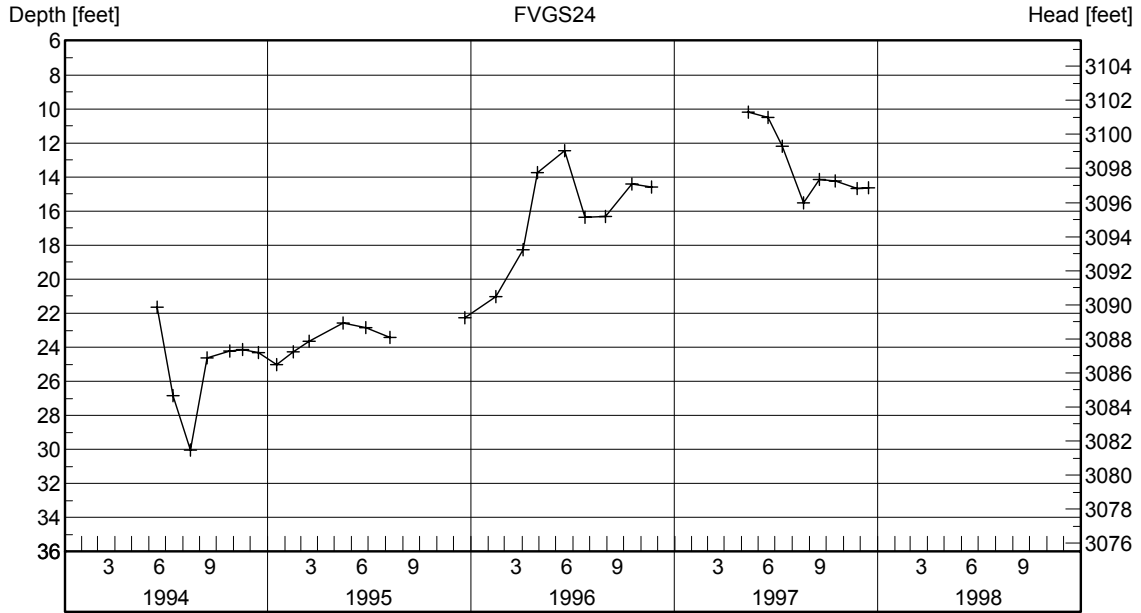


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/15/94	126.58	2934.92	11/21/96	124.88	2936.62						
07/14/94	128.89	2932.61	05/14/97	123.82	2937.68						
08/15/94	129.32	2932.18	06/17/97	123.04	2938.46						
09/14/94	128.48	2933.02	07/09/97	124.38	2937.12						
10/24/94	128.16	2933.34	08/19/97	123.36	2938.14						
11/15/94	127.64	2933.86	09/18/97	122.92	2938.58						
12/15/94	127.55	2933.95	10/15/97	123.21	2938.29						
01/17/95	127.41	2934.09	11/24/97	122.56	2938.94						
02/15/95	127.05	2934.45	12/15/97	122.62	2938.88						
03/16/95	127.48	2934.02									
05/16/95	127.19	2934.31									
06/26/95	127.07	2934.43									
08/08/95	127.80	2933.70									
12/21/95	127.26	2934.24									
02/14/96	126.47	2935.03									
04/03/96	125.83	2935.67									
04/29/96	125.64	2935.86									
06/17/96	125.51	2935.99									
07/24/96	126.59	2934.91									
08/30/96	126.21	2935.29									
10/16/96	125.38	2936.12									

Groundwater Hydrograph

Well Identification FVGS24	MBMG Site # M:086334	Well Name or Well Owner Lloyd Anderson	
Location 30N 21W 29 ACBB	Ground Surface Elev. (ft) 3110.00	Measuring Point Elev. (ft) 3111.50	Well Depth below m.p. (ft) 81.50

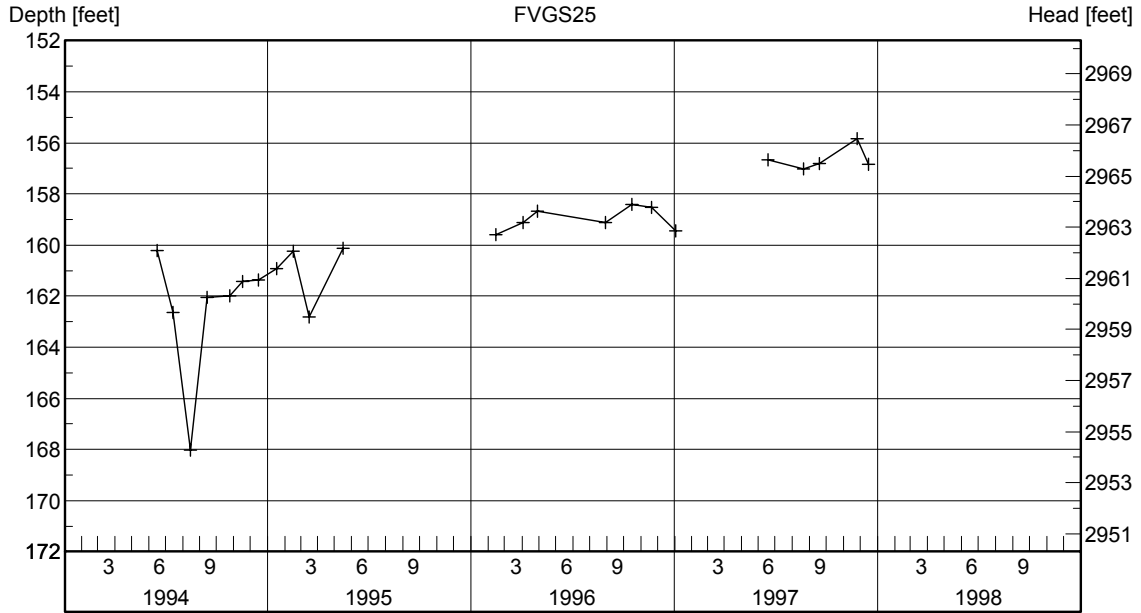


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	21.65	3089.85	11/21/96	14.58	3096.92						
07/14/94	26.84	3084.66	05/14/97	10.21	3101.29						
08/15/94	30.03	3081.47	06/18/97	10.52	3100.98						
09/14/94	24.62	3086.88	07/14/97	12.21	3099.29						
10/24/94	24.20	3087.30	08/20/97	15.54	3095.96						
11/17/94	24.15	3087.35	09/18/97	14.14	3097.36						
12/15/94	24.31	3087.19	10/16/97	14.22	3097.28						
01/17/95	25.00	3086.50	11/25/97	14.66	3096.84						
02/15/95	24.28	3087.22	12/15/97	14.63	3096.87						
03/16/95	23.65	3087.85									
05/16/95	22.58	3088.92									
06/26/95	22.83	3088.67									
08/08/95	23.40	3088.10									
12/21/95	22.26	3089.24									
02/14/96	21.04	3090.46									
04/03/96	18.27	3093.23									
04/29/96	13.76	3097.74									
06/17/96	12.45	3099.05									
07/24/96	16.37	3095.13									
08/30/96	16.31	3095.19									
10/16/96	14.39	3097.11									

Groundwater Hydrograph

Well Identification FVGS25	MBMG Site # M:143177	Well Name or Well Owner AI Getzlaff	
Location 30N 21W 29 BDBB	Ground Surface Elev. (ft) 3120.00	Measuring Point Elev. (ft) 3122.30	Well Depth below m.p. (ft) 271.30

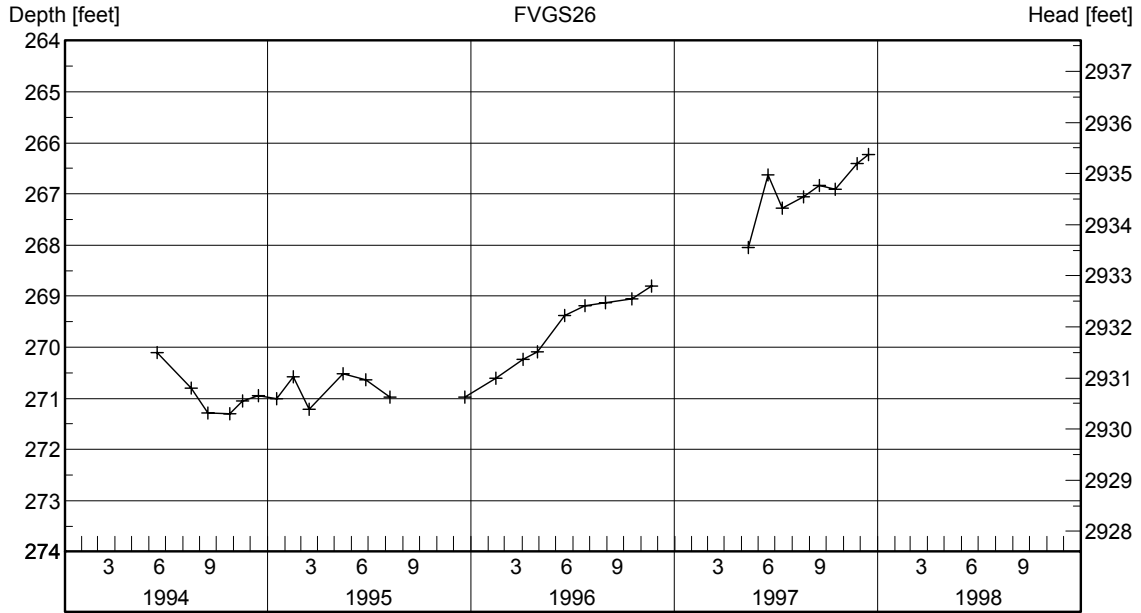


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	160.20	2962.10	11/25/97	155.82	2966.48						
07/14/94	162.64	2959.66	12/15/97	156.85	2965.45						
08/15/94	168.02	2954.28									
09/14/94	162.05	2960.25									
10/24/94	161.99	2960.31									
11/17/94	161.42	2960.88									
12/15/94	161.35	2960.95									
01/17/95	160.92	2961.38									
02/15/95	160.25	2962.05									
03/16/95	162.80	2959.50									
05/16/95	160.13	2962.17									
02/14/96	159.58	2962.72									
04/03/96	159.11	2963.19									
04/29/96	158.66	2963.64									
08/30/96	159.12	2963.18									
10/16/96	158.40	2963.90									
11/21/96	158.51	2963.79									
01/03/97	159.43	2962.87									
06/18/97	156.66	2965.64									
08/20/97	157.02	2965.28									
09/18/97	156.81	2965.49									

Groundwater Hydrograph

Well Identification FVGS26	MBMG Site # M:158202	Well Name or Well Owner Luella Grauck	
Location 30N 22W 36 AABD	Ground Surface Elev. (ft) 3200.00	Measuring Point Elev. (ft) 3201.60	Well Depth below m.p. (ft) 319.60

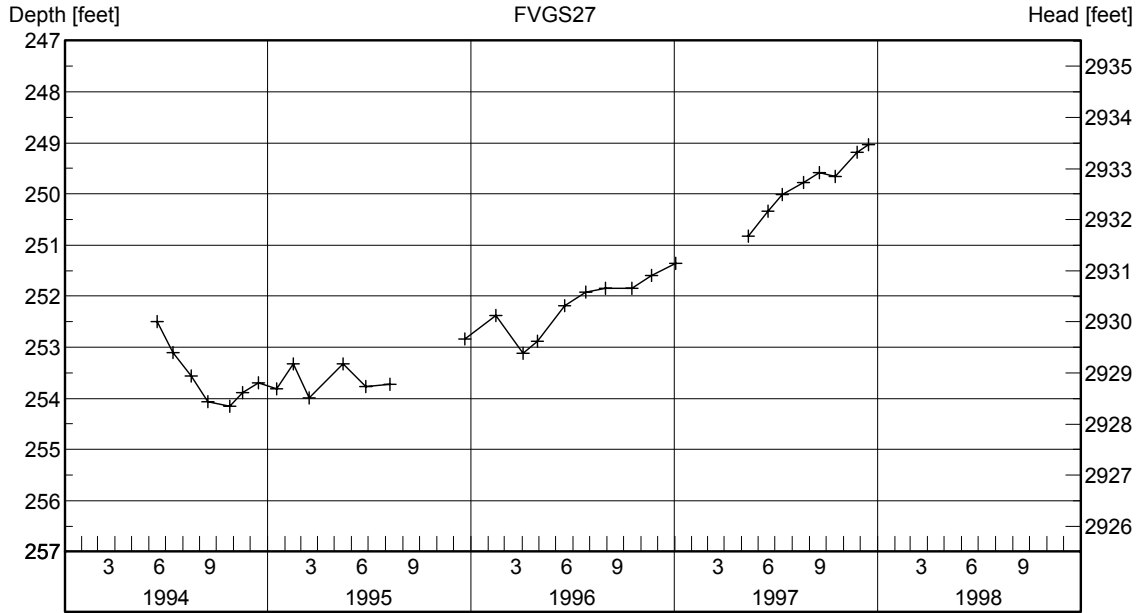


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	270.10	2931.50	05/14/97	268.05	2933.55						
08/16/94	270.79	2930.81	06/18/97	266.63	2934.97						
09/15/94	271.29	2930.31	07/14/97	267.28	2934.32						
10/25/94	271.30	2930.30	08/20/97	267.06	2934.54						
11/17/94	271.05	2930.55	09/18/97	266.83	2934.77						
12/15/94	270.95	2930.65	10/16/97	266.91	2934.69						
01/17/95	271.01	2930.59	11/25/97	266.41	2935.19						
02/15/95	270.58	2931.02	12/15/97	266.22	2935.38						
03/16/95	271.21	2930.39									
05/16/95	270.52	2931.08									
06/26/95	270.63	2930.97									
08/08/95	270.97	2930.63									
12/21/95	270.98	2930.62									
02/14/96	270.60	2931.00									
04/03/96	270.24	2931.36									
04/29/96	270.08	2931.52									
06/17/96	269.38	2932.22									
07/24/96	269.19	2932.41									
08/30/96	269.12	2932.48									
10/16/96	269.05	2932.55									
11/21/96	268.80	2932.80									

Groundwater Hydrograph

Well Identification FVGS27	MBMG Site # M:086659	Well Name or Well Owner Tom Vars	
Location 30N 22W 36 ACAB	Ground Surface Elev. (ft) 3180.00	Measuring Point Elev. (ft) 3182.00	Well Depth below m.p. (ft) 362.00

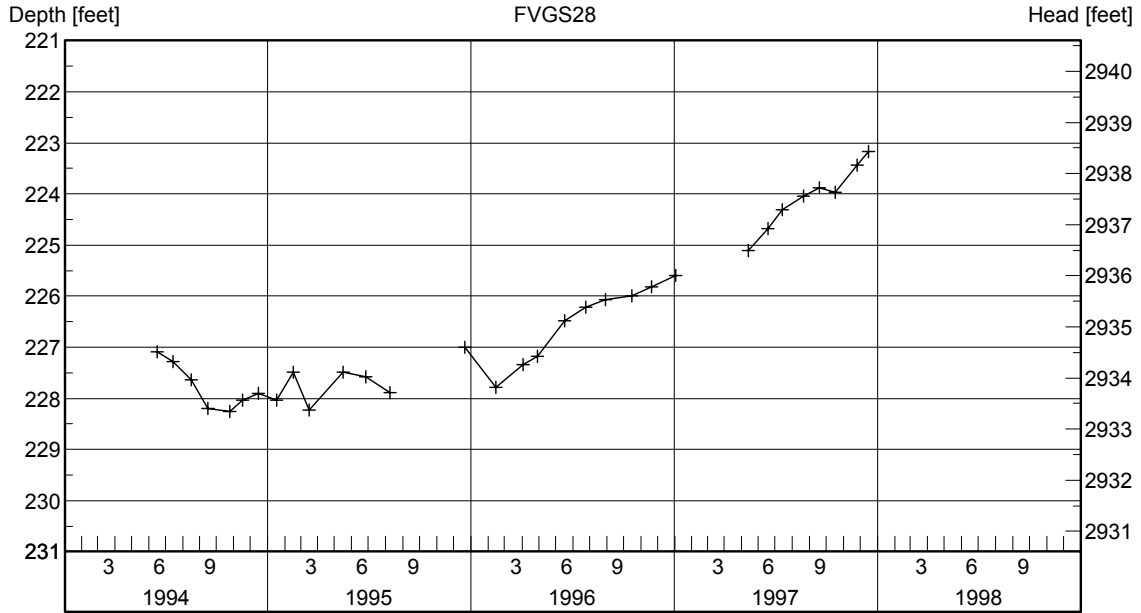


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	252.50	2929.50	11/21/96	251.60	2930.40						
07/14/94	253.10	2928.90	01/03/97	251.35	2930.65						
08/16/94	253.56	2928.44	05/14/97	250.82	2931.18						
09/15/94	254.07	2927.93	06/18/97	250.34	2931.66						
10/25/94	254.15	2927.85	07/14/97	250.01	2931.99						
11/17/94	253.89	2928.11	08/20/97	249.78	2932.22						
12/15/94	253.69	2928.31	09/18/97	249.58	2932.42						
01/17/95	253.81	2928.19	10/16/97	249.66	2932.34						
02/15/95	253.33	2928.67	11/25/97	249.18	2932.82						
03/16/95	253.99	2928.01	12/15/97	249.03	2932.97						
05/16/95	253.33	2928.67									
06/26/95	253.77	2928.23									
08/08/95	253.72	2928.28									
12/21/95	252.83	2929.17									
02/14/96	252.38	2929.62									
04/03/96	253.11	2928.89									
04/29/96	252.88	2929.12									
06/17/96	252.18	2929.82									
07/25/96	251.92	2930.08									
08/30/96	251.85	2930.15									
10/16/96	251.85	2930.15									

Groundwater Hydrograph

Well Identification FVGS28	MBMG Site # M:141701	Well Name or Well Owner Dan Murphy	
Location 30N 22W 36 CBDB	Ground Surface Elev. (ft) 3160.00	Measuring Point Elev. (ft) 3161.60	Well Depth below m.p. (ft) 301.60

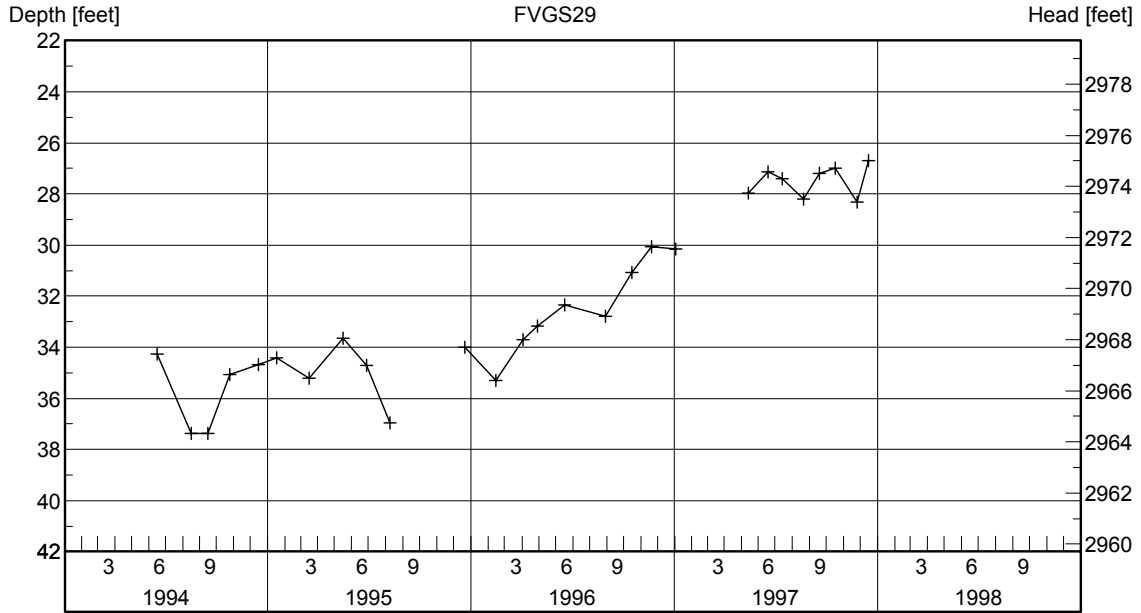


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	227.08	2934.52	11/21/96	225.82	2935.78						
07/14/94	227.28	2934.32	01/03/97	225.59	2936.01						
08/16/94	227.63	2933.97	05/14/97	225.10	2936.50						
09/15/94	228.19	2933.41	06/18/97	224.67	2936.93						
10/25/94	228.25	2933.35	07/14/97	224.31	2937.29						
11/17/94	228.04	2933.56	08/20/97	224.04	2937.56						
12/15/94	227.90	2933.70	09/18/97	223.87	2937.73						
01/17/95	228.03	2933.57	10/16/97	223.96	2937.64						
02/15/95	227.49	2934.11	11/25/97	223.44	2938.16						
03/16/95	228.22	2933.38	12/16/97	223.17	2938.43						
05/16/95	227.48	2934.12									
06/26/95	227.58	2934.02									
08/08/95	227.88	2933.72									
12/21/95	227.00	2934.60									
02/14/96	227.78	2933.82									
04/03/96	227.34	2934.26									
04/29/96	227.18	2934.42									
06/17/96	226.48	2935.12									
07/25/96	226.21	2935.39									
08/30/96	226.07	2935.53									
10/16/96	226.00	2935.60									

Groundwater Hydrograph

Well Identification FVGS29	MBMG Site # M:086604	Well Name or Well Owner Tom Britz	
Location 30N 22W 26 CDDC	Ground Surface Elev. (ft) 3000.00	Measuring Point Elev. (ft) 3001.70	Well Depth below m.p. (ft) 261.70

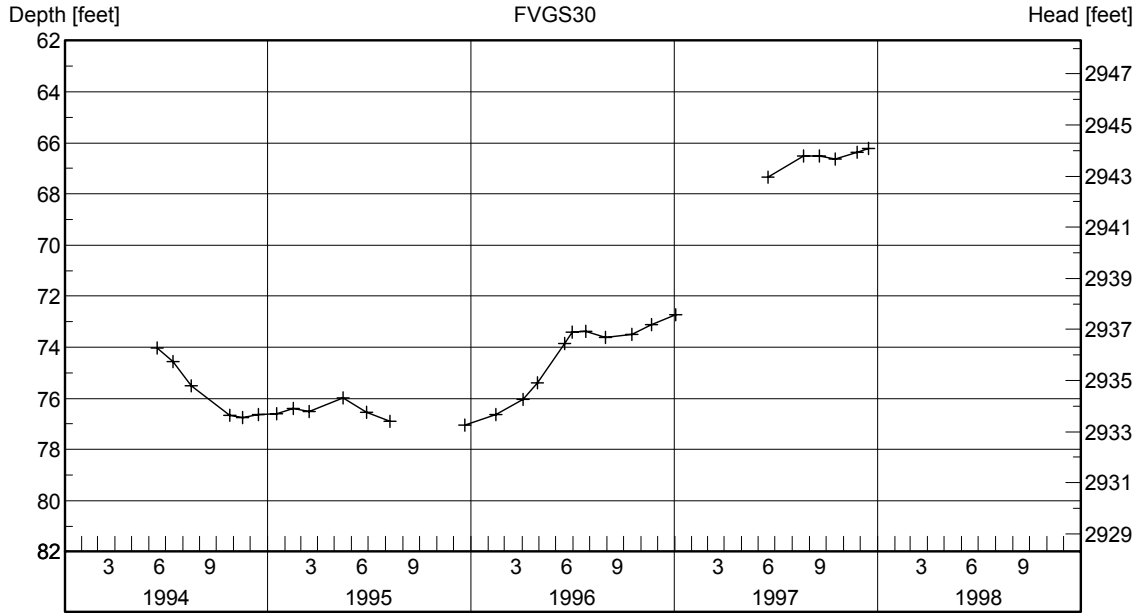


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	34.26	2967.44	07/14/97	27.39	2974.31						
08/16/94	37.36	2964.34	08/20/97	28.21	2973.49						
09/15/94	37.38	2964.32	09/18/97	27.20	2974.50						
10/25/94	35.06	2966.64	10/16/97	26.99	2974.71						
12/15/94	34.68	2967.02	11/25/97	28.31	2973.39						
01/17/95	34.40	2967.30	12/16/97	26.70	2975.00						
03/16/95	35.22	2966.48									
05/16/95	33.65	2968.05									
06/27/95	34.70	2967.00									
08/08/95	36.97	2964.73									
12/21/95	34.00	2967.70									
02/14/96	35.31	2966.39									
04/03/96	33.70	2968.00									
04/29/96	33.17	2968.53									
06/17/96	32.35	2969.35									
08/30/96	32.77	2968.93									
10/16/96	31.07	2970.63									
11/21/96	30.07	2971.63									
01/03/97	30.15	2971.55									
05/14/97	27.97	2973.73									
06/18/97	27.14	2974.56									

Groundwater Hydrograph

Well Identification FVGS30	MBMG Site # M:086652	Well Name or Well Owner Barry Klapperich	
Location 30N 22W 35 BDDD	Ground Surface Elev. (ft) 3010.00	Measuring Point Elev. (ft) 3010.30	Well Depth below m.p. (ft) 90.30

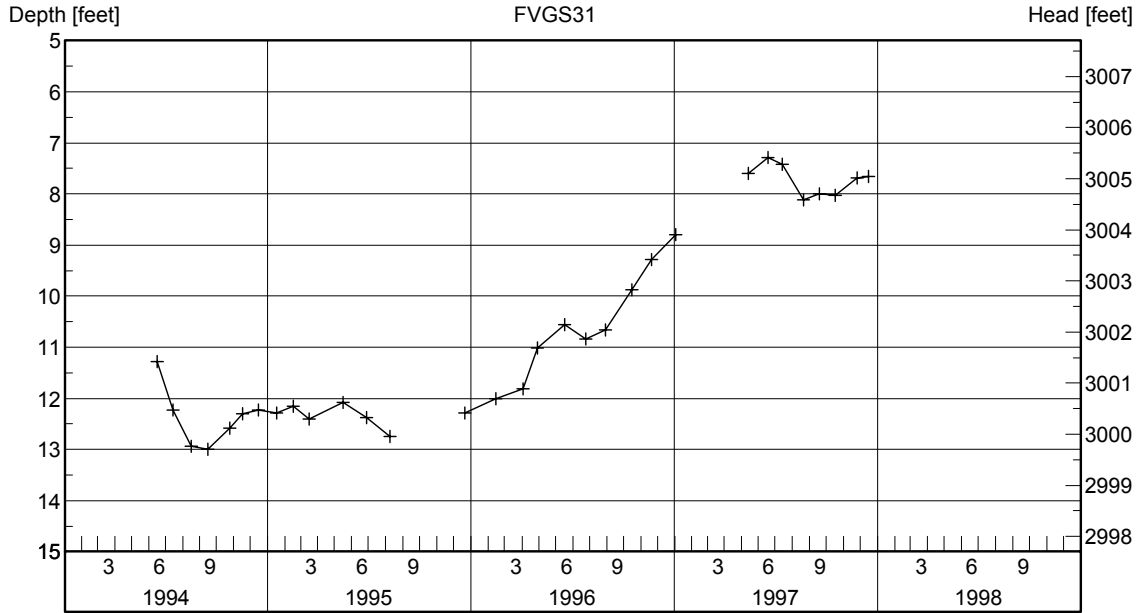


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	74.02	2936.28	11/21/96	73.12	2937.18						
07/14/94	74.55	2935.75	01/03/97	72.73	2937.57						
08/16/94	75.50	2934.80	06/18/97	67.33	2942.97						
10/25/94	76.67	2933.63	08/20/97	66.52	2943.78						
11/17/94	76.75	2933.55	09/18/97	66.52	2943.78						
12/15/94	76.62	2933.68	10/16/97	66.62	2943.68						
01/17/95	76.61	2933.69	11/25/97	66.36	2943.94						
02/15/95	76.40	2933.90	12/16/97	66.21	2944.09						
03/16/95	76.50	2933.80									
05/16/95	75.98	2934.32									
06/27/95	76.53	2933.77									
08/08/95	76.91	2933.39									
12/21/95	77.05	2933.25									
02/14/96	76.64	2933.66									
04/03/96	76.03	2934.27									
04/29/96	75.38	2934.92									
06/17/96	73.85	2936.45									
07/01/96	73.40	2936.90									
07/25/96	73.39	2936.91									
08/30/96	73.62	2936.68									
10/16/96	73.48	2936.82									

Groundwater Hydrograph

Well Identification FVGS31	MBMG Site # M:086648	Well Name or Well Owner Floyd Quiram	
Location 30N 22W 34 DCDA	Ground Surface Elev. (ft) 3010.00	Measuring Point Elev. (ft) 3012.20	Well Depth below m.p. (ft) 522.20

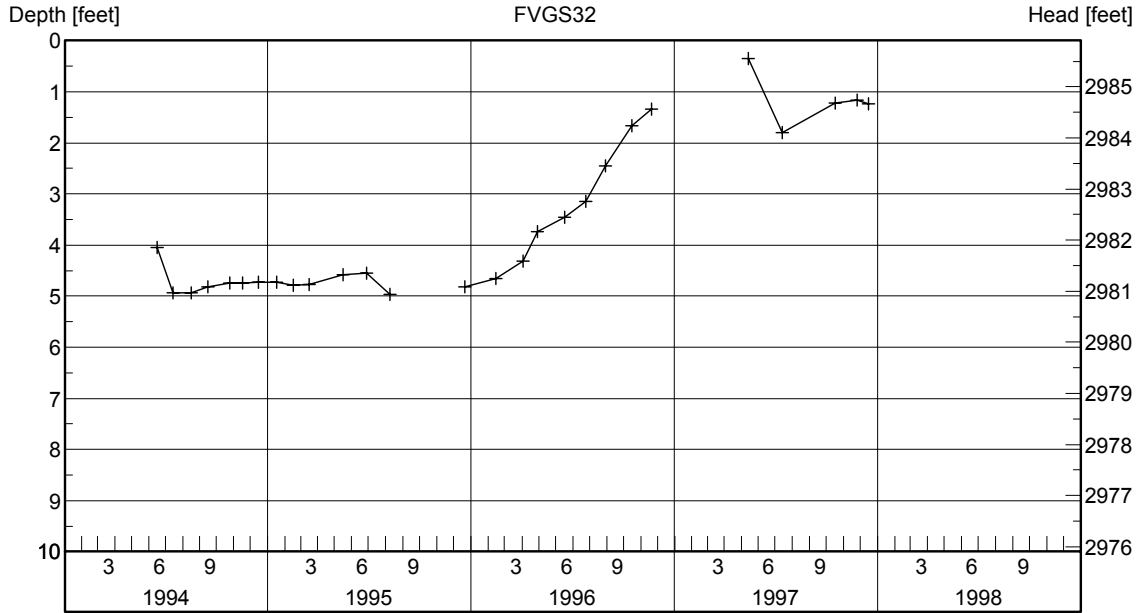


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	11.28	3000.92	11/21/96	9.28	3002.92						
07/14/94	12.23	2999.97	01/03/97	8.79	3003.41						
08/16/94	12.93	2999.27	05/14/97	7.60	3004.60						
09/15/94	13.00	2999.20	06/18/97	7.29	3004.91						
10/25/94	12.58	2999.62	07/14/97	7.42	3004.78						
11/17/94	12.30	2999.90	08/20/97	8.12	3004.08						
12/15/94	12.22	2999.98	09/18/97	8.00	3004.20						
01/17/95	12.29	2999.91	10/16/97	8.02	3004.18						
02/15/95	12.15	3000.05	11/25/97	7.69	3004.51						
03/16/95	12.41	2999.79	12/16/97	7.65	3004.55						
05/16/95	12.08	3000.12									
06/27/95	12.37	2999.83									
08/08/95	12.74	2999.46									
12/21/95	12.28	2999.92									
02/14/96	12.01	3000.19									
04/03/96	11.81	3000.39									
04/29/96	11.01	3001.19									
06/17/96	10.55	3001.65									
07/25/96	10.84	3001.36									
08/30/96	10.66	3001.54									
10/16/96	9.88	3002.32									

Groundwater Hydrograph

Well Identification FVGS32	MBMG Site # M:086644	Well Name or Well Owner George Ingham	
Location 30N 22W 34 CBDD	Ground Surface Elev. (ft) 2985.00	Measuring Point Elev. (ft) 2985.40	Well Depth below m.p. (ft) 250.40

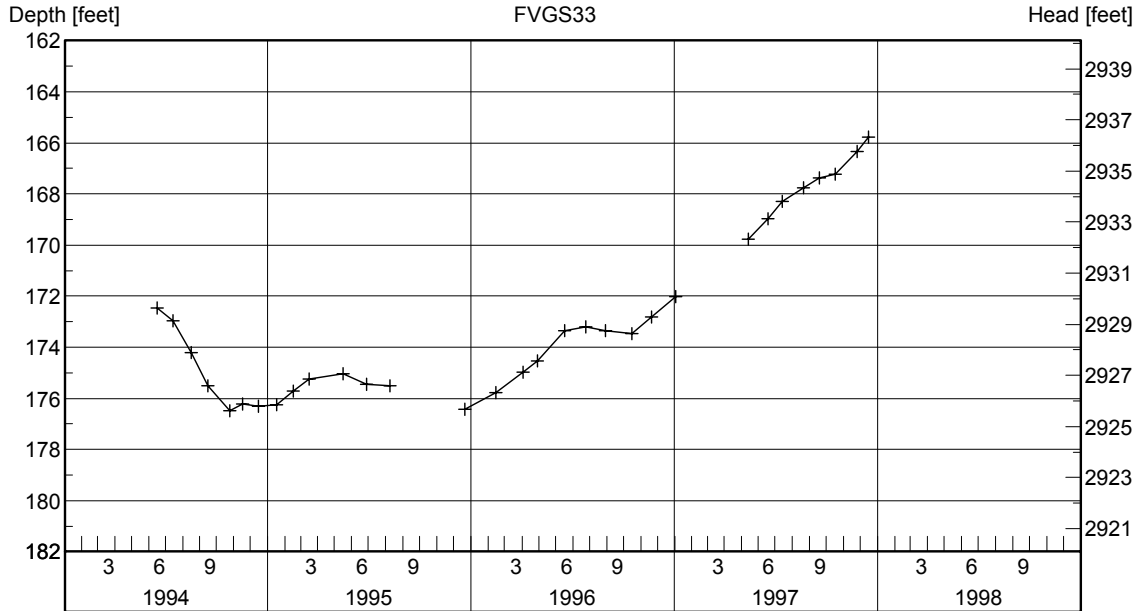


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	4.04	2981.36	11/21/96	1.34	2984.06						
07/14/94	4.93	2980.47	05/14/97	0.35	2985.05						
08/16/94	4.93	2980.47	07/14/97	1.79	2983.61						
09/15/94	4.82	2980.58	10/16/97	1.22	2984.18						
10/25/94	4.74	2980.66	11/25/97	1.16	2984.24						
11/17/94	4.74	2980.66	12/16/97	1.23	2984.17						
12/15/94	4.72	2980.68									
01/17/95	4.72	2980.68									
02/15/95	4.78	2980.62									
03/16/95	4.77	2980.63									
05/16/95	4.58	2980.82									
06/27/95	4.55	2980.85									
08/08/95	4.97	2980.43									
12/21/95	4.81	2980.59									
02/14/96	4.65	2980.75									
04/03/96	4.31	2981.09									
04/29/96	3.74	2981.66									
06/17/96	3.45	2981.95									
07/25/96	3.15	2982.25									
08/30/96	2.45	2982.95									
10/16/96	1.66	2983.74									

Groundwater Hydrograph

Well Identification FVGS33	MBMG Site # M:084489	Well Name or Well Owner Ken Ashby	
Location 29N 22W 04 BBAD	Ground Surface Elev. (ft) 3100.00	Measuring Point Elev. (ft) 3102.10	Well Depth below m.p. (ft) 254.10

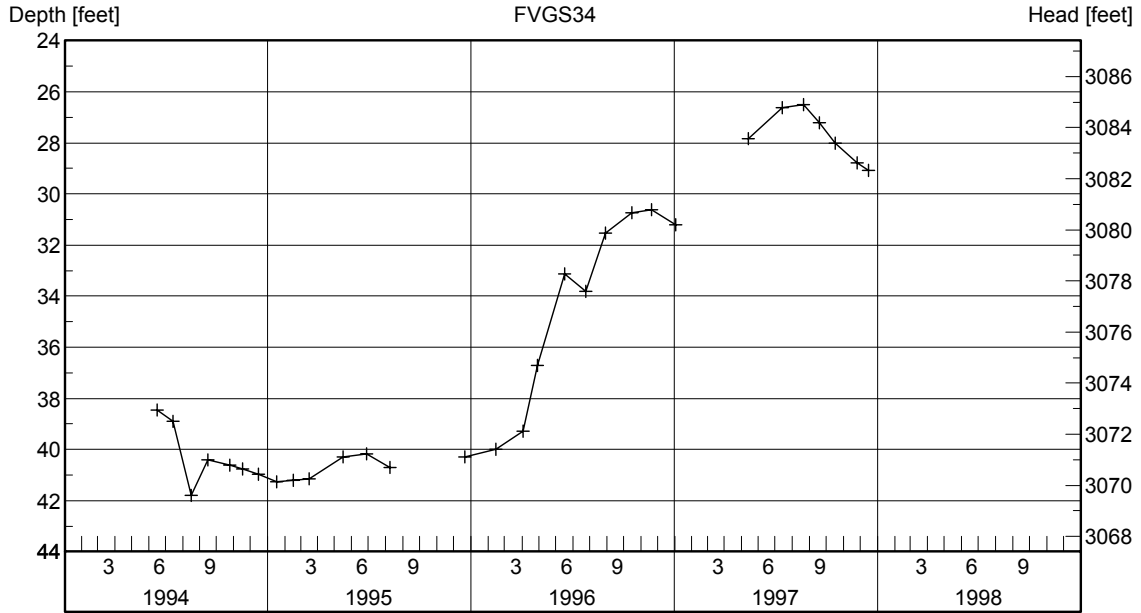


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	172.47	2929.63	11/21/96	172.81	2929.29						
07/14/94	172.97	2929.13	01/03/97	172.01	2930.09						
08/16/94	174.20	2927.90	05/14/97	169.76	2932.34						
09/15/94	175.51	2926.59	06/18/97	168.96	2933.14						
10/25/94	176.48	2925.62	07/14/97	168.28	2933.82						
11/17/94	176.21	2925.89	08/20/97	167.75	2934.35						
12/15/94	176.29	2925.81	09/18/97	167.38	2934.72						
01/17/95	176.25	2925.85	10/16/97	167.21	2934.89						
02/15/95	175.70	2926.40	11/25/97	166.32	2935.78						
03/16/95	175.25	2926.85	12/16/97	165.77	2936.33						
05/16/95	175.03	2927.07									
06/27/95	175.44	2926.66									
08/08/95	175.52	2926.58									
12/21/95	176.42	2925.68									
02/14/96	175.78	2926.32									
04/03/96	174.97	2927.13									
04/29/96	174.52	2927.58									
06/17/96	173.36	2928.74									
07/25/96	173.21	2928.89									
08/30/96	173.35	2928.75									
10/16/96	173.46	2928.64									

Groundwater Hydrograph

Well Identification FVGS34	MBMG Site # M:086639	Well Name or Well Owner Ernie Long	
Location 30N 22W 32 DDCB	Ground Surface Elev. (ft) 3110.00	Measuring Point Elev. (ft) 3111.40	Well Depth below m.p. (ft) 353.40

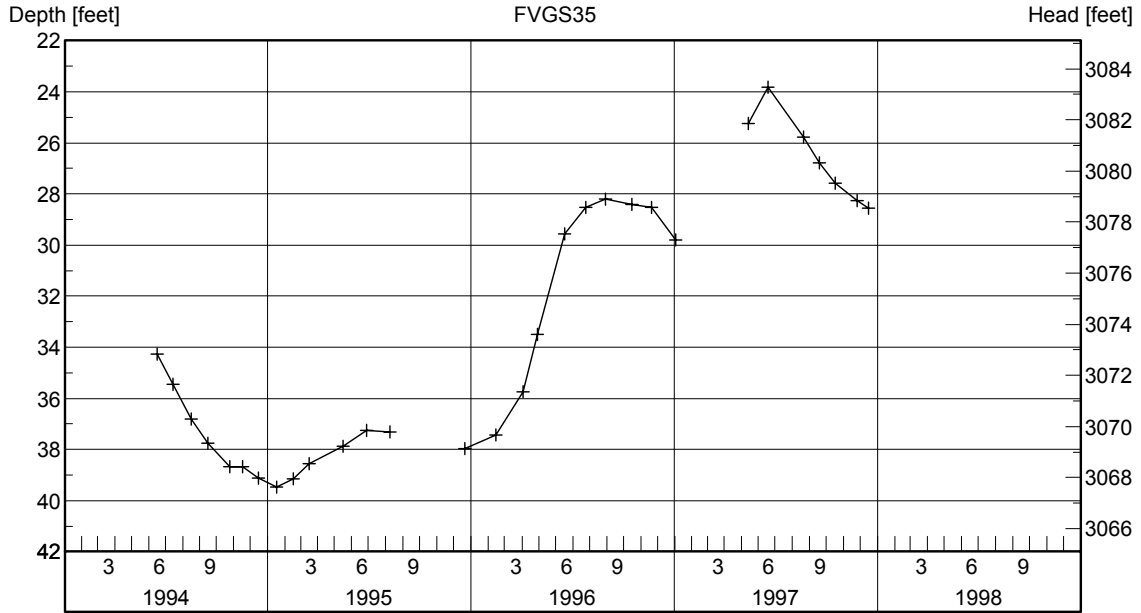


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	38.44	3072.96	11/21/96	30.61	3080.79						
07/14/94	38.90	3072.50	01/03/97	31.19	3080.21						
08/16/94	41.80	3069.60	05/14/97	27.83	3083.57						
09/15/94	40.41	3070.99	07/14/97	26.61	3084.79						
10/25/94	40.60	3070.80	08/20/97	26.49	3084.91						
11/17/94	40.76	3070.64	09/18/97	27.22	3084.18						
12/15/94	40.97	3070.43	10/16/97	28.02	3083.38						
01/17/95	41.26	3070.14	11/25/97	28.77	3082.63						
02/15/95	41.20	3070.20	12/16/97	29.06	3082.34						
03/16/95	41.14	3070.26									
05/16/95	40.30	3071.10									
06/27/95	40.18	3071.22									
08/08/95	40.70	3070.70									
12/21/95	40.28	3071.12									
02/14/96	39.99	3071.41									
04/03/96	39.27	3072.13									
04/29/96	36.71	3074.69									
06/17/96	33.13	3078.27									
07/25/96	33.80	3077.60									
08/30/96	31.54	3079.86									
10/16/96	30.74	3080.66									

Groundwater Hydrograph

Well Identification FVGS35	MBMG Site # M:086641	Well Name or Well Owner Mark Cyr	
Location 30N 22W 32 DCDA	Ground Surface Elev. (ft) 3105.00	Measuring Point Elev. (ft) 3107.10	Well Depth below m.p. (ft) 52.10

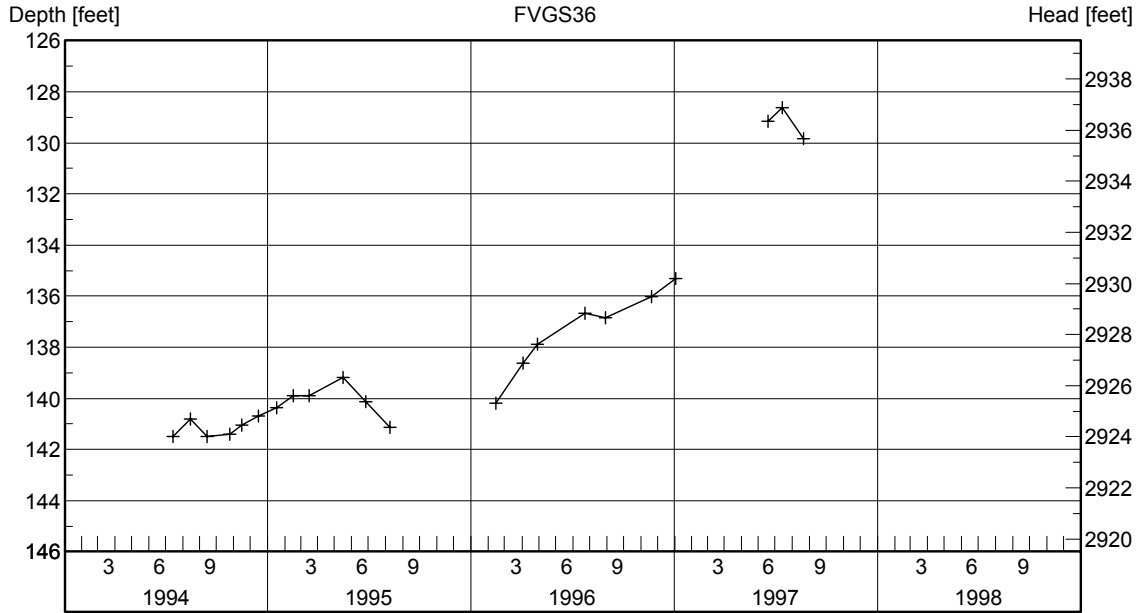


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/16/94	34.25	3072.85	11/21/96	28.52	3078.58						
07/14/94	35.46	3071.64	01/03/97	29.80	3077.30						
08/16/94	36.82	3070.28	05/14/97	25.24	3081.86						
09/15/94	37.75	3069.35	06/18/97	23.83	3083.27						
10/25/94	38.66	3068.44	08/20/97	25.76	3081.34						
11/17/94	38.67	3068.43	09/18/97	26.78	3080.32						
12/15/94	39.12	3067.98	10/16/97	27.57	3079.53						
01/17/95	39.47	3067.63	11/25/97	28.27	3078.83						
02/15/95	39.14	3067.96	12/16/97	28.55	3078.55						
03/16/95	38.56	3068.54									
05/16/95	37.88	3069.22									
06/27/95	37.24	3069.86									
08/08/95	37.32	3069.78									
12/21/95	37.97	3069.13									
02/14/96	37.44	3069.66									
04/03/96	35.75	3071.35									
04/29/96	33.50	3073.60									
06/17/96	29.56	3077.54									
07/25/96	28.52	3078.58									
08/30/96	28.21	3078.89									
10/16/96	28.40	3078.70									

Groundwater Hydrograph

Well Identification FVGS36	MBMG Site # M:120908	Well Name or Well Owner Robert Zavadil	
Location 30N 22W 35 CCDA	Ground Surface Elev. (ft) 3065.00	Measuring Point Elev. (ft) 3065.50	Well Depth below m.p. (ft) 430.50



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
07/15/94	141.48	2924.02	08/20/97	129.83	2935.67						
08/15/94	140.81	2924.69									
09/14/94	141.48	2924.02									
10/24/94	141.40	2924.10									
11/15/94	141.05	2924.45									
12/15/94	140.70	2924.80									
01/17/95	140.35	2925.15									
02/15/95	139.90	2925.60									
03/16/95	139.89	2925.61									
05/16/95	139.19	2926.31									
06/26/95	140.14	2925.36									
08/08/95	141.12	2924.38									
02/14/96	140.18	2925.32									
04/03/96	138.63	2926.87									
04/29/96	137.88	2927.62									
07/24/96	136.66	2928.84									
08/30/96	136.85	2928.65									
11/21/96	136.01	2929.49									
01/03/97	135.30	2930.20									
06/18/97	129.14	2936.36									
07/14/97	128.61	2936.89									

Groundwater Hydrograph

Well Identification
FVGS37

MBMG Site #
M:153004

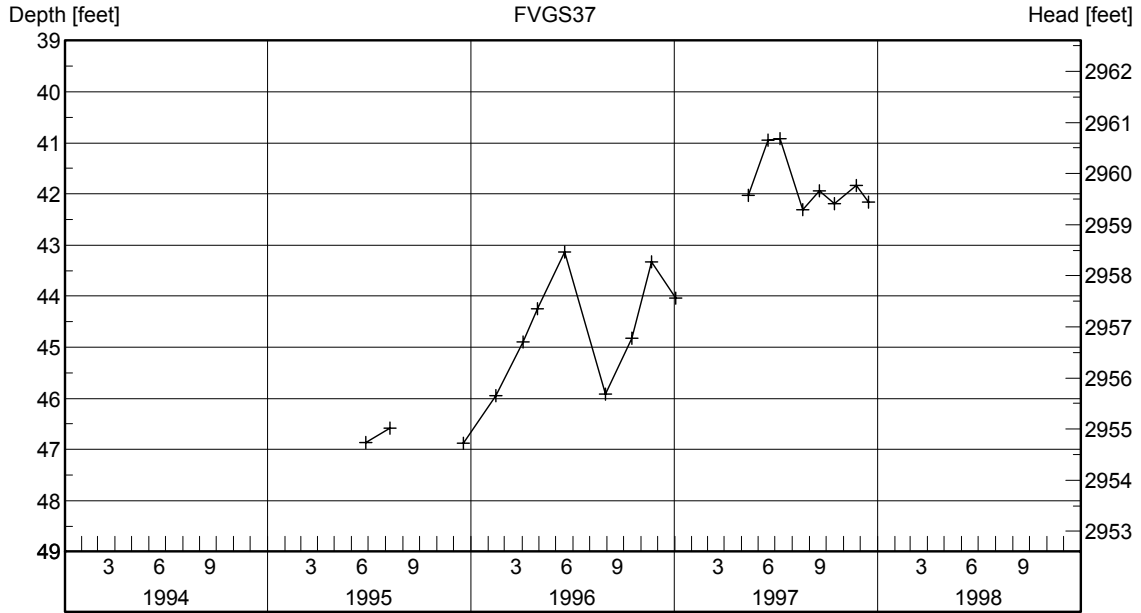
Well Name or Well Owner
Leonard Greene (NORTH irrigation well)

Location
30N 21W 23 BBCC

Ground Surface Elev. (ft)
3000.00

Measuring Point Elev. (ft)
3001.60

Well Depth below m.p. (ft)
593.60



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/26/95	46.86	2954.74									
08/08/95	46.58	2955.02									
12/18/95	46.88	2954.72									
02/14/96	45.95	2955.65									
04/03/96	44.89	2956.71									
04/29/96	44.24	2957.36									
06/17/96	43.14	2958.46									
08/30/96	45.91	2955.69									
10/16/96	44.82	2956.78									
11/21/96	43.33	2958.27									
01/03/97	44.04	2957.56									
05/14/97	42.02	2959.58									
06/18/97	40.95	2960.65									
07/09/97	40.92	2960.68									
08/19/97	42.30	2959.30									
09/18/97	41.93	2959.67									
10/15/97	42.19	2959.41									
11/24/97	41.83	2959.77									
12/15/97	42.16	2959.44									

Groundwater Hydrograph

Well Identification
FVGS38

MBMG Site #
M:149142

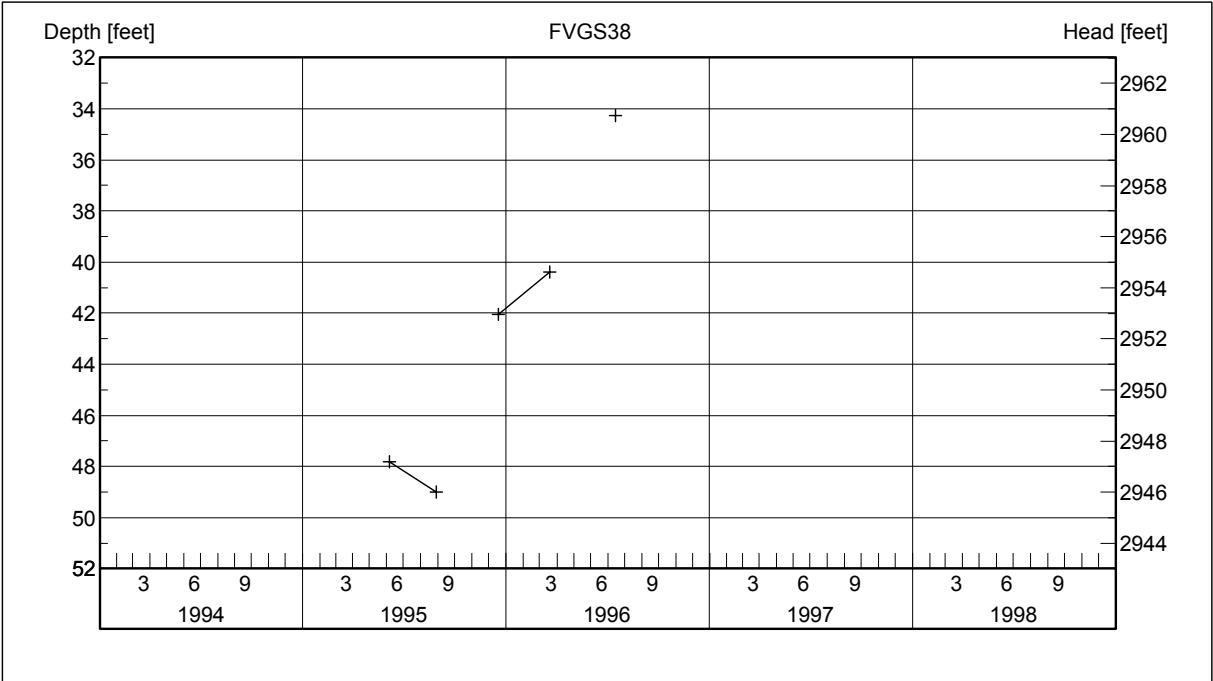
Well Name or Well Owner	K. Gordon Cross
-------------------------	-----------------

Location	30N 21W 22 AADC
----------	-----------------

Ground Surface Elev. (ft)	3000.00
---------------------------	---------

Measuring Point Elev. (ft) 2995.00

Well Depth below m.p. (ft)	260.00
----------------------------	--------

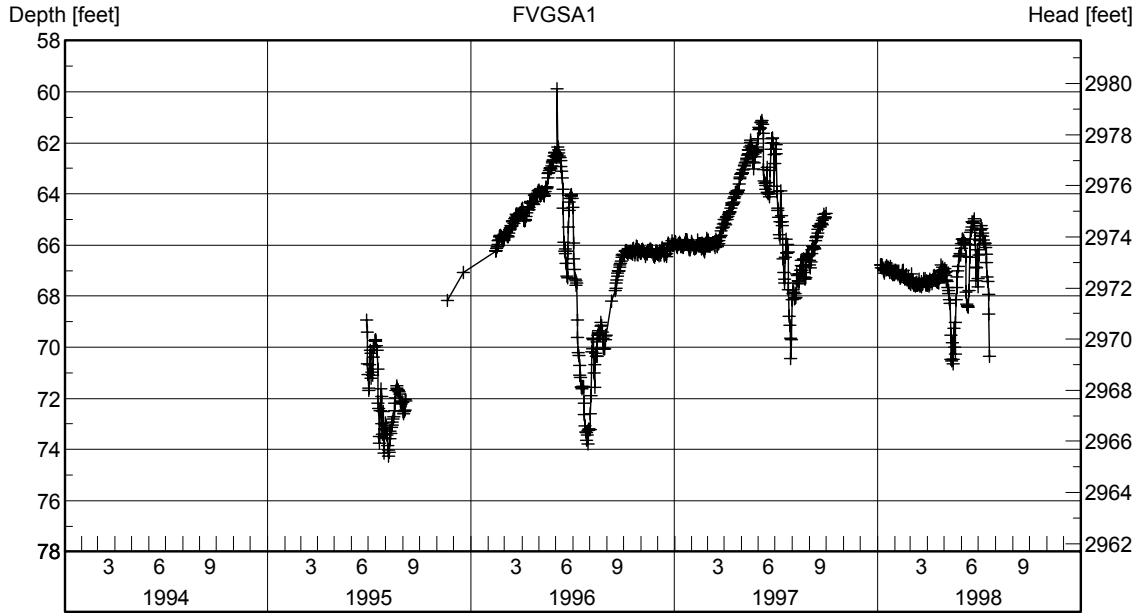


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/06/95	47.80	2947.20									
08/29/95	48.99	2946.01									
12/18/95	42.03	2952.97									
03/19/96	40.39	2954.61									
07/16/96	34.25	2960.75									

Groundwater Hydrograph

Well Identification FVGS A1	MBMG Site # M:148187	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well A1		
Location 30N 20W 20 CBBB	Ground Surface Elev. (ft) 3037.28	Measuring Point Elev. (ft) 3039.68	Well Depth below m.p. (ft) 159.40	



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/27/95	68.94	2970.74	07/18/95	72.19	2967.49	08/08/95	73.59	2966.09	08/29/95	72.23	2967.45
06/28/95	69.42	2970.26	07/19/95	72.38	2967.30	08/09/95	73.29	2966.39	08/30/95	72.13	2967.55
06/29/95	70.64	2969.04	07/20/95	73.50	2966.18	08/10/95	73.38	2966.30	08/31/95	72.17	2967.51
06/30/95	71.06	2968.62	07/21/95	73.76	2965.92	08/11/95	73.14	2966.54	09/01/95	72.51	2967.17
07/01/95	71.69	2967.99	07/22/95	72.48	2967.20	08/12/95	73.04	2966.64	09/02/95	72.59	2967.09
07/02/95	71.58	2968.10	07/23/95	71.63	2968.05	08/13/95	72.93	2966.75	09/03/95	72.52	2967.16
07/03/95	70.67	2969.01	07/24/95	71.91	2967.77	08/14/95	72.81	2966.87	09/04/95	72.03	2967.65
07/04/95	70.11	2969.57	07/25/95	72.98	2966.70	08/15/95	72.71	2966.97	09/05/95	72.46	2967.22
07/05/95	70.23	2969.45	07/26/95	73.39	2966.29	08/16/95	72.48	2967.20	09/06/95	72.11	2967.57
07/06/95	71.22	2968.46	07/27/95	72.52	2967.16	08/17/95	72.19	2967.49	11/19/95	68.17	2971.51
07/07/95	70.96	2968.72	07/28/95	73.56	2966.12	08/18/95	71.97	2967.71	12/18/95	67.08	2972.60
07/08/95	71.08	2968.60	07/29/95	74.13	2965.55	08/19/95	71.69	2967.99	02/14/96	66.24	2973.44
07/09/95	70.37	2969.31	07/30/95	73.19	2966.49	08/20/95	71.59	2968.09	02/15/96	66.21	2973.47
07/10/95	69.97	2969.71	07/31/95	72.95	2966.73	08/21/95	71.52	2968.16	02/16/96	66.11	2973.57
07/11/95	69.99	2969.69	08/01/95	73.07	2966.61	08/22/95	71.65	2968.03	02/17/96	66.06	2973.62
07/12/95	69.73	2969.95	08/02/95	73.21	2966.47	08/23/95	71.68	2968.00	02/18/96	65.96	2973.72
07/13/95	69.75	2969.93	08/03/95	73.42	2966.26	08/24/95	71.68	2968.00	02/19/96	65.84	2973.84
07/14/95	69.69	2969.99	08/04/95	73.84	2965.84	08/25/95	71.74	2967.94	02/20/96	65.81	2973.87
07/15/95	69.95	2969.73	08/05/95	74.03	2965.65	08/26/95	71.82	2967.86	02/21/96	65.67	2974.01
07/16/95	70.11	2969.57	08/06/95	74.26	2965.42	08/27/95	72.10	2967.58	02/22/96	65.64	2974.04
07/17/95	70.86	2968.82	08/07/95	74.12	2965.56	08/28/95	72.15	2967.53	02/23/96	65.62	2974.06

Groundwater Hydrograph

Well Identification

FVGSA1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
02/24/96	65.64	2974.04	04/10/96	64.74	2974.94	05/26/96	62.78	2976.90	07/11/96	69.60	2970.08
02/25/96	65.73	2973.95	04/11/96	64.61	2975.07	05/27/96	62.71	2976.97	07/12/96	70.20	2969.48
02/26/96	65.71	2973.97	04/12/96	64.49	2975.19	05/28/96	62.65	2977.03	07/13/96	70.33	2969.35
02/27/96	65.77	2973.91	04/13/96	64.51	2975.17	05/29/96	62.50	2977.18	07/14/96	70.70	2968.98
02/28/96	65.83	2973.85	04/14/96	64.61	2975.07	05/30/96	62.37	2977.31	07/15/96	71.09	2968.59
02/29/96	65.79	2973.89	04/15/96	64.53	2975.15	05/31/96	62.38	2977.30	07/16/96	71.17	2968.51
03/01/96	65.74	2973.94	04/16/96	64.34	2975.34	06/01/96	62.51	2977.17	07/17/96	71.57	2968.11
03/02/96	65.58	2974.10	04/17/96	64.28	2975.40	06/02/96	62.58	2977.10	07/18/96	71.63	2968.05
03/03/96	65.50	2974.18	04/18/96	64.32	2975.36	06/03/96	62.45	2977.23	07/19/96	71.55	2968.13
03/04/96	65.46	2974.22	04/19/96	64.36	2975.32	06/04/96	59.89	2979.79	07/20/96	71.54	2968.14
03/05/96	65.47	2974.21	04/20/96	64.36	2975.32	06/05/96	62.15	2977.53	07/21/96	71.55	2968.13
03/06/96	65.64	2974.04	04/21/96	64.38	2975.30	06/06/96	62.27	2977.41	07/22/96	72.19	2967.49
03/07/96	65.69	2973.99	04/22/96	64.41	2975.27	06/07/96	62.40	2977.28	07/23/96	72.64	2967.04
03/08/96	65.66	2974.02	04/23/96	64.29	2975.39	06/08/96	62.52	2977.16	07/24/96	73.08	2966.60
03/09/96	65.53	2974.15	04/24/96	64.06	2975.62	06/09/96	62.58	2977.10	07/25/96	73.32	2966.36
03/10/96	65.41	2974.27	04/25/96	64.01	2975.67	06/10/96	62.70	2976.98	07/26/96	73.34	2966.34
03/11/96	65.37	2974.31	04/26/96	64.02	2975.66	06/11/96	62.93	2976.75	07/27/96	73.64	2966.04
03/12/96	65.32	2974.36	04/27/96	64.04	2975.64	06/12/96	63.09	2976.59	07/28/96	73.43	2966.25
03/13/96	65.22	2974.46	04/28/96	64.11	2975.57	06/13/96	63.38	2976.30	07/29/96	73.25	2966.43
03/14/96	65.26	2974.42	04/29/96	64.04	2975.64	06/14/96	63.80	2975.88	07/30/96	73.79	2965.89
03/15/96	65.08	2974.60	04/30/96	63.97	2975.71	06/15/96	64.55	2975.13	07/31/96	73.19	2966.49
03/16/96	65.07	2974.61	05/01/96	63.88	2975.80	06/16/96	65.89	2973.79	08/01/96	73.21	2966.47
03/17/96	65.07	2974.61	05/02/96	63.83	2975.85	06/17/96	66.24	2973.44	08/02/96	73.22	2966.46
03/18/96	65.14	2974.54	05/03/96	63.90	2975.78	06/18/96	66.16	2973.52	08/03/96	72.61	2967.07
03/19/96	65.05	2974.63	05/04/96	63.99	2975.69	06/19/96	66.34	2973.34	08/04/96	71.89	2967.79
03/20/96	64.98	2974.70	05/05/96	64.09	2975.59	06/20/96	66.70	2972.98	08/05/96	70.18	2969.50
03/21/96	64.91	2974.77	05/06/96	64.04	2975.64	06/21/96	67.22	2972.46	08/06/96	70.06	2969.62
03/22/96	64.79	2974.89	05/07/96	63.90	2975.78	06/22/96	67.28	2972.40	08/07/96	69.63	2970.05
03/23/96	64.85	2974.83	05/08/96	63.93	2975.75	06/23/96	66.24	2973.44	08/08/96	69.71	2969.97
03/24/96	64.99	2974.69	05/09/96	63.96	2975.72	06/24/96	65.28	2974.40	08/09/96	70.99	2968.69
03/25/96	65.01	2974.67	05/10/96	63.99	2975.69	06/25/96	64.63	2975.05	08/10/96	71.57	2968.11
03/26/96	64.87	2974.81	05/11/96	64.05	2975.63	06/26/96	64.31	2975.37	08/11/96	70.67	2969.01
03/27/96	64.84	2974.84	05/12/96	64.09	2975.59	06/27/96	64.17	2975.51	08/12/96	70.23	2969.45
03/28/96	64.78	2974.90	05/13/96	63.91	2975.77	06/28/96	64.06	2975.62	08/13/96	70.35	2969.33
03/29/96	64.73	2974.95	05/14/96	63.73	2975.95	06/29/96	64.02	2975.66	08/14/96	70.36	2969.32
03/30/96	64.74	2974.94	05/15/96	63.78	2975.90	06/30/96	64.09	2975.59	08/15/96	69.80	2969.88
03/31/96	64.76	2974.92	05/16/96	63.78	2975.90	07/01/96	64.18	2975.50	08/16/96	69.53	2970.15
04/01/96	64.60	2975.08	05/17/96	63.73	2975.95	07/02/96	64.52	2975.16	08/17/96	69.43	2970.25
04/02/96	64.55	2975.13	05/18/96	63.37	2976.31	07/03/96	65.90	2973.78	08/18/96	69.35	2970.33
04/03/96	64.67	2975.01	05/19/96	63.19	2976.49	07/04/96	66.53	2973.15	08/19/96	69.46	2970.22
04/04/96	64.84	2974.84	05/20/96	63.16	2976.52	07/05/96	66.94	2972.74	08/20/96	69.51	2970.17
04/05/96	65.04	2974.64	05/21/96	63.07	2976.61	07/06/96	67.32	2972.36	08/21/96	69.16	2970.52
04/06/96	65.05	2974.63	05/22/96	63.00	2976.68	07/07/96	67.56	2972.12	08/22/96	69.03	2970.65
04/07/96	65.04	2974.64	05/23/96	62.98	2976.70	07/08/96	67.40	2972.28	08/23/96	69.13	2970.55
04/08/96	65.01	2974.67	05/24/96	63.02	2976.66	07/09/96	67.47	2972.21	08/24/96	69.40	2970.28
04/09/96	64.88	2974.80	05/25/96	62.91	2976.77	07/10/96	68.93	2970.75	08/25/96	69.65	2970.03

Groundwater Hydrograph

Well Identification

FVGSA1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
08/26/96	70.04	2969.64	10/25/96	66.06	2973.62	12/10/96	66.10	2973.58	01/25/97	65.96	2973.72
08/27/96	70.06	2969.62	10/26/96	66.35	2973.33	12/11/96	66.18	2973.50	01/26/97	66.02	2973.66
08/28/96	70.06	2969.62	10/27/96	66.38	2973.30	12/12/96	66.23	2973.45	01/27/97	66.18	2973.50
08/29/96	69.71	2969.97	10/28/96	66.20	2973.48	12/13/96	66.36	2973.32	01/28/97	66.16	2973.52
08/30/96	69.54	2970.14	10/29/96	66.17	2973.51	12/14/96	66.41	2973.27	01/29/97	66.19	2973.49
08/31/96	69.53	2970.15	10/30/96	66.25	2973.43	12/15/96	66.37	2973.31	01/30/97	66.06	2973.62
09/09/96	68.18	2971.50	10/31/96	66.30	2973.38	12/16/96	66.34	2973.34	01/31/97	65.86	2973.82
09/16/96	67.78	2971.90	11/01/96	66.33	2973.35	12/17/96	66.44	2973.24	02/01/97	65.92	2973.76
09/17/96	67.69	2971.99	11/02/96	66.28	2973.40	12/18/96	66.33	2973.35	02/02/97	65.98	2973.70
09/18/96	67.49	2972.19	11/03/96	66.17	2973.51	12/19/96	66.22	2973.46	02/03/97	65.99	2973.69
09/19/96	67.35	2972.33	11/04/96	66.16	2973.52	12/20/96	65.97	2973.71	02/04/97	66.10	2973.58
09/20/96	67.22	2972.46	11/05/96	66.22	2973.46	12/21/96	65.91	2973.77	02/05/97	66.13	2973.55
09/21/96	67.11	2972.57	11/06/96	66.21	2973.47	12/22/96	65.97	2973.71	02/06/97	66.14	2973.54
09/22/96	67.02	2972.66	11/07/96	66.27	2973.41	12/23/96	66.10	2973.58	02/07/97	66.13	2973.55
09/23/96	67.00	2972.68	11/08/96	66.33	2973.35	12/24/96	66.17	2973.51	02/08/97	66.09	2973.59
09/24/96	66.87	2972.81	11/09/96	66.44	2973.24	12/25/96	66.09	2973.59	02/09/97	66.09	2973.59
09/25/96	66.77	2972.91	11/10/96	66.33	2973.35	12/26/96	65.98	2973.70	02/10/97	66.02	2973.66
09/26/96	66.71	2972.97	11/11/96	66.31	2973.37	12/27/96	65.84	2973.84	02/11/97	65.98	2973.70
09/27/96	66.63	2973.05	11/12/96	66.35	2973.33	12/28/96	65.99	2973.69	02/12/97	65.81	2973.87
09/28/96	66.49	2973.19	11/13/96	66.30	2973.38	12/29/96	65.98	2973.70	02/13/97	65.96	2973.72
09/29/96	66.40	2973.28	11/14/96	66.21	2973.47	12/30/96	65.99	2973.69	02/14/97	65.95	2973.73
09/30/96	66.37	2973.31	11/15/96	66.20	2973.48	12/31/96	65.94	2973.74	02/15/97	66.01	2973.67
10/01/96	66.38	2973.30	11/16/96	66.22	2973.46	01/01/97	65.86	2973.82	02/16/97	65.95	2973.73
10/02/96	66.42	2973.26	11/17/96	66.20	2973.48	01/02/97	65.91	2973.77	02/17/97	65.93	2973.75
10/03/96	66.39	2973.29	11/18/96	66.14	2973.54	01/03/97	65.89	2973.79	02/18/97	66.14	2973.54
10/04/96	66.24	2973.44	11/19/96	66.15	2973.53	01/04/97	66.03	2973.65	02/19/97	65.91	2973.77
10/05/96	66.20	2973.48	11/20/96	66.22	2973.46	01/05/97	66.05	2973.63	02/20/97	66.07	2973.61
10/06/96	66.21	2973.47	11/21/96	66.26	2973.42	01/06/97	66.10	2973.58	02/21/97	66.12	2973.56
10/07/96	66.27	2973.41	11/22/96	66.22	2973.46	01/07/97	65.97	2973.71	02/22/97	66.17	2973.51
10/08/96	66.30	2973.38	11/23/96	66.35	2973.33	01/08/97	65.97	2973.71	02/23/97	66.22	2973.46
10/09/96	66.35	2973.33	11/24/96	66.43	2973.25	01/09/97	65.93	2973.75	02/24/97	66.28	2973.40
10/10/96	66.27	2973.41	11/25/96	66.41	2973.27	01/10/97	65.89	2973.79	02/25/97	66.11	2973.57
10/11/96	66.24	2973.44	11/26/96	66.47	2973.21	01/11/97	65.93	2973.75	02/26/97	65.92	2973.76
10/12/96	66.27	2973.41	11/27/96	66.39	2973.29	01/12/97	66.05	2973.63	02/27/97	65.75	2973.93
10/13/96	66.25	2973.43	11/28/96	66.21	2973.47	01/13/97	66.03	2973.65	02/28/97	65.86	2973.82
10/14/96	66.30	2973.38	11/29/96	66.30	2973.38	01/14/97	66.00	2973.68	03/01/97	65.84	2973.84
10/15/96	66.23	2973.45	11/30/96	66.32	2973.36	01/15/97	66.05	2973.63	03/02/97	65.80	2973.88
10/16/96	66.32	2973.36	12/01/96	66.23	2973.45	01/16/97	66.10	2973.58	03/03/97	65.85	2973.83
10/17/96	66.37	2973.31	12/02/96	66.35	2973.33	01/17/97	66.07	2973.61	03/04/97	65.92	2973.76
10/18/96	66.15	2973.53	12/03/96	66.37	2973.31	01/18/97	66.00	2973.68	03/05/97	66.02	2973.66
10/19/96	66.13	2973.55	12/04/96	66.41	2973.27	01/19/97	65.91	2973.77	03/06/97	65.95	2973.73
10/20/96	66.24	2973.44	12/05/96	66.21	2973.47	01/20/97	65.81	2973.87	03/07/97	65.95	2973.73
10/21/96	66.38	2973.30	12/06/96	66.31	2973.37	01/21/97	65.79	2973.89	03/08/97	65.95	2973.73
10/22/96	66.26	2973.42	12/07/96	66.38	2973.30	01/22/97	65.81	2973.87	03/09/97	65.96	2973.72
10/23/96	66.19	2973.49	12/08/96	66.26	2973.42	01/23/97	65.80	2973.88	03/10/97	65.91	2973.77
10/24/96	66.03	2973.65	12/09/96	66.21	2973.47	01/24/97	65.91	2973.77	03/11/97	65.92	2973.76

Groundwater Hydrograph

Well Identification

FVGSA1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/12/97	65.90	2973.78	04/27/97	63.62	2976.06	06/12/97	63.59	2976.09	07/28/97	69.64	2970.04
03/13/97	66.01	2973.67	04/28/97	63.41	2976.27	06/13/97	63.67	2976.01	07/29/97	70.44	2969.24
03/14/97	66.09	2973.59	04/29/97	63.34	2976.34	06/14/97	63.81	2975.87	07/30/97	69.70	2969.98
03/15/97	65.89	2973.79	04/30/97	63.22	2976.46	06/15/97	63.55	2976.13	07/31/97	68.12	2971.56
03/16/97	65.77	2973.91	05/01/97	63.22	2976.46	06/16/97	62.95	2976.73	08/01/97	67.90	2971.78
03/17/97	65.86	2973.82	05/02/97	63.18	2976.50	06/17/97	63.94	2975.74	08/02/97	67.76	2971.92
03/18/97	66.05	2973.63	05/03/97	63.15	2976.53	06/18/97	63.98	2975.70	08/03/97	67.84	2971.84
03/19/97	66.02	2973.66	05/04/97	63.05	2976.63	06/19/97	63.97	2975.71	08/04/97	68.09	2971.59
03/20/97	65.93	2973.75	05/05/97	63.04	2976.64	06/20/97	64.11	2975.57	08/05/97	68.07	2971.61
03/21/97	65.93	2973.75	05/06/97	62.91	2976.77	06/21/97	63.98	2975.70	08/06/97	67.89	2971.79
03/22/97	65.82	2973.86	05/07/97	62.86	2976.82	06/22/97	63.07	2976.61	08/07/97	68.03	2971.65
03/23/97	65.72	2973.96	05/08/97	62.78	2976.90	06/23/97	62.24	2977.44	08/08/97	67.48	2972.20
03/24/97	65.64	2974.04	05/09/97	62.75	2976.93	06/24/97	62.00	2977.68	08/09/97	67.13	2972.55
03/25/97	65.62	2974.06	05/10/97	62.66	2977.02	06/25/97	61.82	2977.86	08/10/97	67.20	2972.48
03/26/97	65.45	2974.23	05/11/97	62.60	2977.08	06/26/97	61.80	2977.88	08/11/97	67.40	2972.28
03/27/97	65.33	2974.35	05/12/97	62.47	2977.21	06/27/97	62.02	2977.66	08/12/97	67.41	2972.27
03/28/97	65.32	2974.36	05/13/97	62.41	2977.27	06/28/97	62.44	2977.24	08/13/97	67.51	2972.17
03/29/97	65.28	2974.40	05/14/97	62.27	2977.41	06/29/97	63.69	2975.99	08/14/97	67.13	2972.55
03/30/97	65.17	2974.51	05/15/97	62.28	2977.40	06/30/97	62.82	2976.86	08/15/97	66.98	2972.70
03/31/97	65.01	2974.67	05/16/97	62.16	2977.52	07/01/97	62.25	2977.43	08/16/97	66.79	2972.89
04/01/97	65.15	2974.53	05/17/97	61.97	2977.71	07/02/97	62.06	2977.62	08/17/97	66.58	2973.10
04/02/97	65.21	2974.47	05/18/97	61.89	2977.79	07/03/97	62.43	2977.25	08/18/97	66.99	2972.69
04/03/97	65.00	2974.68	05/19/97	62.09	2977.59	07/04/97	63.89	2975.79	08/19/97	66.83	2972.85
04/04/97	64.90	2974.78	05/20/97	62.23	2977.45	07/05/97	64.56	2975.12	08/20/97	66.54	2973.14
04/05/97	64.99	2974.69	05/21/97	62.46	2977.22	07/06/97	64.65	2975.03	08/21/97	67.06	2972.62
04/06/97	64.89	2974.79	05/22/97	62.76	2976.92	07/07/97	64.91	2974.77	08/22/97	67.25	2972.43
04/07/97	64.88	2974.80	05/23/97	63.01	2976.67	07/08/97	65.59	2974.09	08/23/97	67.33	2972.35
04/08/97	64.79	2974.89	05/24/97	62.77	2976.91	07/09/97	65.75	2973.93	08/24/97	67.27	2972.41
04/09/97	64.73	2974.95	05/25/97	62.53	2977.15	07/10/97	65.08	2974.60	08/25/97	66.78	2972.90
04/10/97	64.70	2974.98	05/26/97	62.38	2977.30	07/11/97	63.86	2975.82	08/26/97	66.47	2973.21
04/11/97	64.69	2974.99	05/27/97	62.34	2977.34	07/12/97	64.85	2974.83	08/27/97	66.45	2973.23
04/12/97	64.55	2975.13	05/28/97	62.24	2977.44	07/13/97	65.23	2974.45	08/28/97	66.40	2973.28
04/13/97	64.43	2975.25	05/29/97	62.29	2977.39	07/14/97	65.10	2974.58	08/29/97	66.32	2973.36
04/14/97	64.36	2975.32	05/30/97	62.15	2977.53	07/15/97	66.55	2973.13	08/30/97	66.41	2973.27
04/15/97	64.40	2975.28	05/31/97	61.82	2977.86	07/16/97	67.08	2972.60	08/31/97	66.59	2973.09
04/16/97	64.37	2975.31	06/01/97	61.49	2978.19	07/17/97	67.49	2972.19	09/01/97	66.78	2972.90
04/17/97	64.32	2975.36	06/02/97	61.40	2978.28	07/18/97	67.32	2972.36	09/02/97	66.89	2972.79
04/18/97	64.16	2975.52	06/03/97	61.44	2978.24	07/19/97	66.48	2973.20	09/03/97	66.66	2973.02
04/19/97	64.10	2975.58	06/04/97	61.43	2978.25	07/20/97	65.77	2973.91	09/04/97	66.32	2973.36
04/20/97	63.94	2975.74	06/05/97	61.20	2978.48	07/21/97	66.29	2973.39	09/05/97	66.18	2973.50
04/21/97	64.03	2975.65	06/06/97	61.17	2978.51	07/22/97	66.30	2973.38	09/06/97	66.04	2973.64
04/22/97	63.95	2975.73	06/07/97	61.13	2978.55	07/23/97	65.96	2973.72	09/07/97	66.07	2973.61
04/23/97	63.87	2975.81	06/08/97	61.28	2978.40	07/24/97	66.27	2973.41	09/08/97	66.10	2973.58
04/24/97	63.88	2975.80	06/09/97	61.61	2978.07	07/25/97	67.74	2971.94	09/09/97	66.12	2973.56
04/25/97	63.93	2975.75	06/10/97	63.05	2976.63	07/26/97	68.77	2970.91	09/10/97	66.15	2973.53
04/26/97	63.83	2975.85	06/11/97	63.50	2976.18	07/27/97	69.15	2970.53	09/11/97	65.84	2973.84

Groundwater Hydrograph

Well Identification

FVGSA1 (continued)

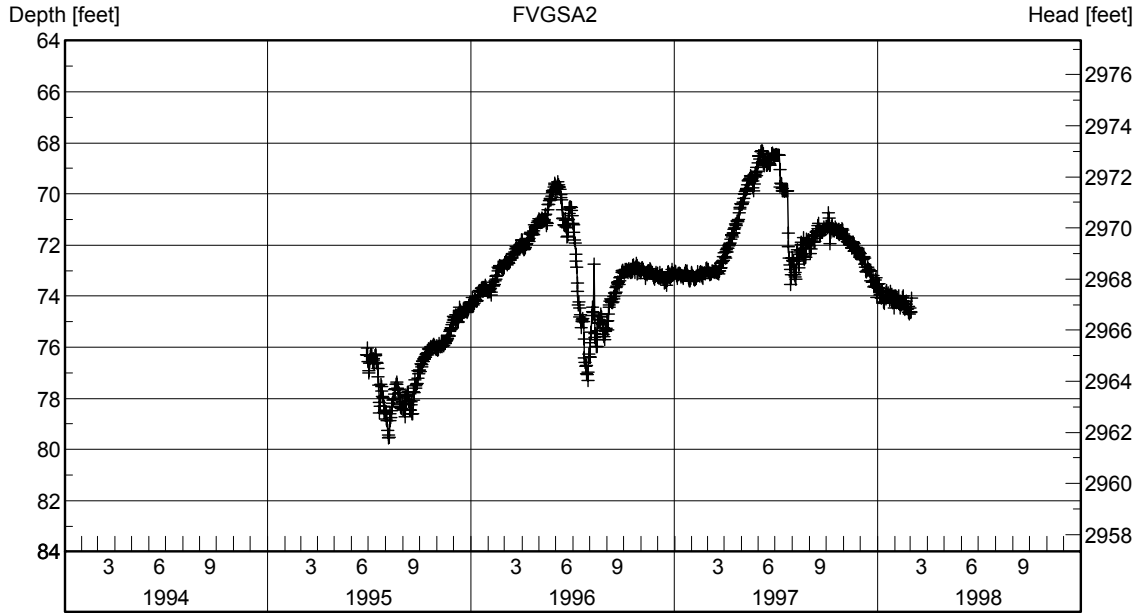
Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/12/97	65.69	2973.99	02/02/98	66.98	2972.70	03/20/98	67.62	2972.06	05/05/98	67.35	2972.33
09/13/97	65.71	2973.97	02/03/98	67.08	2972.60	03/21/98	67.42	2972.26	05/06/98	67.42	2972.26
09/14/97	65.66	2974.02	02/04/98	67.07	2972.61	03/22/98	67.53	2972.15	05/07/98	67.65	2972.03
09/15/97	65.53	2974.15	02/05/98	67.01	2972.67	03/23/98	67.50	2972.18	05/08/98	67.89	2971.79
09/16/97	65.39	2974.29	02/06/98	67.16	2972.52	03/24/98	67.29	2972.39	05/09/98	67.79	2971.89
09/17/97	65.23	2974.45	02/07/98	67.11	2972.57	03/25/98	67.42	2972.26	05/10/98	68.14	2971.54
09/18/97	65.25	2974.43	02/08/98	67.01	2972.67	03/26/98	67.41	2972.27	05/11/98	68.27	2971.41
09/19/97	65.29	2974.39	02/09/98	67.23	2972.45	03/27/98	67.29	2972.39	05/12/98	69.51	2970.17
09/20/97	65.26	2974.42	02/10/98	67.30	2972.38	03/28/98	67.52	2972.16	05/13/98	70.47	2969.21
09/21/97	65.17	2974.51	02/11/98	67.18	2972.50	03/29/98	67.57	2972.11	05/14/98	70.52	2969.16
09/22/97	65.14	2974.54	02/12/98	67.24	2972.44	03/30/98	67.40	2972.28	05/15/98	69.82	2969.86
09/23/97	65.19	2974.49	02/13/98	67.20	2972.48	03/31/98	67.54	2972.14	05/16/98	70.46	2969.22
09/24/97	65.02	2974.66	02/14/98	67.02	2972.66	04/01/98	67.57	2972.11	05/17/98	70.66	2969.02
09/25/97	64.95	2974.73	02/15/98	67.12	2972.56	04/02/98	67.45	2972.23	05/18/98	69.25	2970.43
09/26/97	64.80	2974.88	02/16/98	66.97	2972.71	04/03/98	67.60	2972.08	05/19/98	70.00	2969.68
09/27/97	64.91	2974.77	02/17/98	67.26	2972.42	04/04/98	67.53	2972.15	05/20/98	70.27	2969.41
09/28/97	64.96	2974.72	02/18/98	67.34	2972.34	04/05/98	67.33	2972.35	05/21/98	69.02	2970.66
09/29/97	64.91	2974.77	02/19/98	67.25	2972.43	04/06/98	67.43	2972.25	05/22/98	68.13	2971.55
09/30/97	64.75	2974.93	02/20/98	67.28	2972.40	04/07/98	67.40	2972.28	05/23/98	67.66	2972.02
01/06/98	66.76	2972.92	02/21/98	67.18	2972.50	04/08/98	67.40	2972.28	05/24/98	67.25	2972.43
01/07/98	66.78	2972.90	02/22/98	67.17	2972.51	04/09/98	67.51	2972.17	05/25/98	67.02	2972.66
01/08/98	66.89	2972.79	02/23/98	67.37	2972.31	04/10/98	67.36	2972.32	05/26/98	66.83	2972.85
01/09/98	66.76	2972.92	02/24/98	67.34	2972.34	04/11/98	67.21	2972.47	05/27/98	66.46	2973.22
01/10/98	66.90	2972.78	02/25/98	67.28	2972.40	04/12/98	67.25	2972.43	05/28/98	66.43	2973.25
01/11/98	67.01	2972.67	02/26/98	67.45	2972.23	04/13/98	67.20	2972.48	05/29/98	66.33	2973.35
01/12/98	66.94	2972.74	02/27/98	67.49	2972.19	04/14/98	67.31	2972.37	05/30/98	66.38	2973.30
01/13/98	67.10	2972.58	02/28/98	67.45	2972.23	04/15/98	67.36	2972.32	05/31/98	66.12	2973.56
01/14/98	66.89	2972.79	03/01/98	67.55	2972.13	04/16/98	67.25	2972.43	06/01/98	65.95	2973.73
01/15/98	66.86	2972.82	03/02/98	67.45	2972.23	04/17/98	67.41	2972.27	06/02/98	65.76	2973.92
01/16/98	66.99	2972.69	03/03/98	67.13	2972.55	04/18/98	67.44	2972.24	06/03/98	65.76	2973.92
01/17/98	66.81	2972.87	03/04/98	67.45	2972.23	04/19/98	67.25	2972.43	06/04/98	65.88	2973.80
01/18/98	66.96	2972.72	03/05/98	67.52	2972.16	04/20/98	67.46	2972.22	06/05/98	65.84	2973.84
01/19/98	66.86	2972.82	03/06/98	67.38	2972.30	04/21/98	67.47	2972.21	06/06/98	65.97	2973.71
01/20/98	66.85	2972.83	03/07/98	67.56	2972.12	04/22/98	67.31	2972.37	06/07/98	65.93	2973.75
01/21/98	66.98	2972.70	03/08/98	67.54	2972.14	04/23/98	67.21	2972.47	06/08/98	66.46	2973.22
01/22/98	66.93	2972.75	03/09/98	67.47	2972.21	04/24/98	67.06	2972.62	06/09/98	67.85	2971.83
01/23/98	67.06	2972.62	03/10/98	67.60	2972.08	04/25/98	66.77	2972.91	06/10/98	68.32	2971.36
01/24/98	66.84	2972.84	03/11/98	67.53	2972.15	04/26/98	66.97	2972.71	06/11/98	68.37	2971.31
01/25/98	67.08	2972.60	03/12/98	67.56	2972.12	04/27/98	67.04	2972.64	06/12/98	68.40	2971.28
01/26/98	67.09	2972.59	03/13/98	67.45	2972.23	04/28/98	66.87	2972.81	06/13/98	68.43	2971.25
01/27/98	66.93	2972.75	03/14/98	67.57	2972.11	04/29/98	66.99	2972.69	06/14/98	67.78	2971.90
01/28/98	67.15	2972.53	03/15/98	67.53	2972.15	04/30/98	67.13	2972.55	06/15/98	66.48	2973.20
01/29/98	67.07	2972.61	03/16/98	67.34	2972.34	05/01/98	66.91	2972.77	06/16/98	65.98	2973.70
01/30/98	66.98	2972.70	03/17/98	67.50	2972.18	05/02/98	67.07	2972.61	06/17/98	65.51	2974.17
01/31/98	67.17	2972.51	03/18/98	67.59	2972.09	05/03/98	67.19	2972.49	06/18/98	65.42	2974.26
02/01/98	67.13	2972.55	03/19/98	67.55	2972.13	05/04/98	67.05	2972.63	06/19/98	65.28	2974.40

Groundwater Hydrograph											
Well Identification											
FVGSA1 (continued)											
Depth to groundwater and head are reported from measuring point											
Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/20/98	65.08	2974.60									
06/21/98	65.12	2974.56									
06/22/98	65.15	2974.53									
06/23/98	64.98	2974.70									
06/24/98	65.06	2974.62									
06/25/98	65.78	2973.90									
06/26/98	66.85	2972.83									
06/27/98	67.39	2972.29									
06/28/98	66.88	2972.80									
06/29/98	66.18	2973.50									
06/30/98	67.30	2972.38									
07/01/98	67.62	2972.06									
07/02/98	66.40	2973.28									
07/03/98	65.83	2973.85									
07/04/98	65.61	2974.07									
07/05/98	65.42	2974.26									
07/06/98	65.24	2974.44									
07/07/98	65.34	2974.34									
07/08/98	65.54	2974.14									
07/09/98	65.66	2974.02									
07/10/98	65.80	2973.88									
07/11/98	65.94	2973.74									
07/12/98	65.92	2973.76									
07/13/98	65.93	2973.75									
07/14/98	66.09	2973.59									
07/15/98	66.36	2973.32									
07/16/98	66.67	2973.01									
07/17/98	67.24	2972.44									
07/18/98	67.43	2972.25									
07/19/98	67.92	2971.76									
07/20/98	68.70	2970.98									
07/21/98	70.35	2969.33									

Groundwater Hydrograph

Well Identification FVGSA2	MBMG Site # M:148188	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well A2		
Location 30N 20W 19 DAAB	Ground Surface Elev. (ft) 3038.83	Measuring Point Elev. (ft) 3041.33	Well Depth below m.p. (ft) 520.50	



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/27/95	76.29	2965.04	07/18/95	77.16	2964.17	08/08/95	78.88	2962.45	08/29/95	78.38	2962.95
06/28/95	76.02	2965.31	07/19/95	77.48	2963.85	08/09/95	78.61	2962.72	08/30/95	78.13	2963.20
06/29/95	76.29	2965.04	07/20/95	78.16	2963.17	08/10/95	78.76	2962.57	08/31/95	78.13	2963.20
06/30/95	76.56	2964.77	07/21/95	78.58	2962.75	08/11/95	78.47	2962.86	09/01/95	78.46	2962.87
07/01/95	76.92	2964.41	07/22/95	78.29	2963.04	08/12/95	78.33	2963.00	09/02/95	78.43	2962.90
07/02/95	77.01	2964.32	07/23/95	77.45	2963.88	08/13/95	78.20	2963.13	09/03/95	78.21	2963.12
07/03/95	76.61	2964.72	07/24/95	77.54	2963.79	08/14/95	78.08	2963.25	09/04/95	77.85	2963.48
07/04/95	76.35	2964.98	07/25/95	77.72	2963.61	08/15/95	78.02	2963.31	09/05/95	78.73	2962.60
07/05/95	76.33	2965.00	07/26/95	77.93	2963.40	08/16/95	77.83	2963.50	09/06/95	78.22	2963.11
07/06/95	76.28	2965.05	07/27/95	77.99	2963.34	08/17/95	77.64	2963.69	09/07/95	77.92	2963.41
07/07/95	76.32	2965.01	07/28/95	78.29	2963.04	08/18/95	77.63	2963.70	09/08/95	77.85	2963.48
07/08/95	76.58	2964.75	07/29/95	78.53	2962.80	08/19/95	77.46	2963.87	09/09/95	77.78	2963.55
07/09/95	76.49	2964.84	07/30/95	78.44	2962.89	08/20/95	77.36	2963.97	09/10/95	77.73	2963.60
07/10/95	76.44	2964.89	07/31/95	78.50	2962.83	08/21/95	77.45	2963.88	09/11/95	78.10	2963.23
07/11/95	76.66	2964.67	08/01/95	78.61	2962.72	08/22/95	77.59	2963.74	09/12/95	78.11	2963.22
07/12/95	76.31	2965.02	08/02/95	78.81	2962.52	08/23/95	77.64	2963.69	09/13/95	78.45	2962.88
07/13/95	76.31	2965.02	08/03/95	78.88	2962.45	08/24/95	77.64	2963.69	09/14/95	78.44	2962.89
07/14/95	76.26	2965.07	08/04/95	79.24	2962.09	08/25/95	77.78	2963.55	09/15/95	78.24	2963.09
07/15/95	76.59	2964.74	08/05/95	79.43	2961.90	08/26/95	77.96	2963.37	09/16/95	78.13	2963.20
07/16/95	76.63	2964.70	08/06/95	79.56	2961.77	08/27/95	78.25	2963.08	09/17/95	78.59	2962.74
07/17/95	76.83	2964.50	08/07/95	79.53	2961.80	08/28/95	78.32	2963.01	09/18/95	78.60	2962.73

Groundwater Hydrograph

Well Identification

FVGSA2 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/19/95	78.08	2963.25	11/04/95	75.97	2965.36	12/20/95	74.62	2966.71	02/04/96	73.76	2967.57
09/20/95	77.74	2963.59	11/05/95	75.84	2965.49	12/21/95	74.60	2966.73	02/05/96	73.69	2967.64
09/21/95	77.76	2963.57	11/06/95	75.98	2965.35	12/22/95	74.57	2966.76	02/06/96	73.96	2967.37
09/22/95	77.27	2964.06	11/07/95	75.96	2965.37	12/23/95	74.59	2966.74	02/07/96	73.84	2967.49
09/23/95	77.51	2963.82	11/08/95	75.96	2965.37	12/24/95	74.59	2966.74	02/08/96	73.57	2967.76
09/24/95	77.60	2963.73	11/09/95	75.77	2965.56	12/25/95	74.64	2966.69	02/09/96	73.44	2967.89
09/25/95	77.45	2963.88	11/10/95	75.96	2965.37	12/26/95	74.57	2966.76	02/10/96	73.56	2967.77
09/26/95	77.41	2963.92	11/11/95	75.80	2965.53	12/27/95	74.50	2966.83	02/11/96	73.60	2967.73
09/27/95	77.22	2964.11	11/12/95	75.85	2965.48	12/28/95	74.48	2966.85	02/12/96	73.53	2967.80
09/28/95	76.92	2964.41	11/13/95	75.95	2965.38	12/29/95	74.31	2967.02	02/13/96	73.39	2967.94
09/29/95	77.04	2964.29	11/14/95	75.85	2965.48	12/30/95	74.22	2967.11	02/14/96	73.21	2968.12
09/30/95	76.93	2964.40	11/15/95	75.82	2965.51	12/31/95	74.27	2967.06	02/15/96	73.33	2968.00
10/01/95	76.88	2964.45	11/16/95	75.85	2965.48	01/01/96	74.41	2966.92	02/16/96	73.20	2968.13
10/02/95	76.93	2964.40	11/17/95	75.75	2965.58	01/02/96	74.30	2967.03	02/17/96	73.18	2968.15
10/03/95	76.65	2964.68	11/18/95	75.73	2965.60	01/03/96	74.03	2967.30	02/18/96	73.00	2968.33
10/04/95	76.78	2964.55	11/19/95	75.63	2965.70	01/04/96	74.22	2967.11	02/19/96	72.87	2968.46
10/05/95	76.69	2964.64	11/20/95	75.68	2965.65	01/05/96	74.33	2967.00	02/20/96	72.91	2968.42
10/06/95	76.53	2964.80	11/21/95	75.52	2965.81	01/06/96	74.28	2967.05	02/21/96	72.81	2968.52
10/07/95	76.57	2964.76	11/22/95	75.54	2965.79	01/07/96	74.18	2967.15	02/22/96	72.83	2968.50
10/08/95	76.45	2964.88	11/23/95	75.56	2965.77	01/08/96	74.12	2967.21	02/23/96	72.82	2968.51
10/09/95	76.46	2964.87	11/24/95	75.39	2965.94	01/09/96	74.12	2967.21	02/24/96	72.83	2968.50
10/10/95	76.38	2964.95	11/25/95	75.32	2966.01	01/10/96	74.18	2967.15	02/25/96	72.90	2968.43
10/11/95	76.38	2964.95	11/26/95	75.24	2966.09	01/11/96	74.19	2967.14	02/26/96	72.86	2968.47
10/12/95	76.25	2965.08	11/27/95	75.28	2966.05	01/12/96	74.15	2967.18	02/27/96	72.92	2968.41
10/13/95	76.30	2965.03	11/28/95	75.11	2966.22	01/13/96	74.01	2967.32	02/28/96	72.91	2968.42
10/14/95	76.22	2965.11	11/29/95	75.01	2966.32	01/14/96	73.98	2967.35	02/29/96	72.89	2968.44
10/15/95	76.30	2965.03	11/30/95	74.92	2966.41	01/15/96	73.84	2967.49	03/01/96	72.86	2968.47
10/16/95	76.19	2965.14	12/01/95	74.78	2966.55	01/16/96	73.79	2967.54	03/02/96	72.68	2968.65
10/17/95	76.05	2965.28	12/02/95	74.84	2966.49	01/17/96	73.95	2967.38	03/03/96	72.66	2968.67
10/18/95	76.08	2965.25	12/03/95	74.93	2966.40	01/18/96	73.98	2967.35	03/04/96	72.60	2968.73
10/19/95	76.23	2965.10	12/04/95	74.73	2966.60	01/19/96	73.79	2967.54	03/05/96	72.61	2968.72
10/20/95	76.02	2965.31	12/05/95	74.94	2966.39	01/20/96	73.70	2967.63	03/06/96	72.77	2968.56
10/21/95	75.96	2965.37	12/06/95	74.93	2966.40	01/21/96	73.67	2967.66	03/07/96	72.69	2968.64
10/22/95	76.06	2965.27	12/07/95	74.84	2966.49	01/22/96	73.82	2967.51	03/08/96	72.71	2968.62
10/23/95	76.03	2965.30	12/08/95	75.01	2966.32	01/23/96	73.71	2967.62	03/09/96	72.71	2968.62
10/24/95	75.97	2965.36	12/09/95	74.98	2966.35	01/24/96	73.67	2967.66	03/10/96	72.57	2968.76
10/25/95	75.90	2965.43	12/10/95	74.83	2966.50	01/25/96	73.67	2967.66	03/11/96	72.58	2968.75
10/26/95	75.87	2965.46	12/11/95	74.63	2966.70	01/26/96	73.75	2967.58	03/12/96	72.55	2968.78
10/27/95	76.00	2965.33	12/12/95	74.44	2966.89	01/27/96	73.56	2967.77	03/13/96	72.48	2968.85
10/28/95	75.94	2965.39	12/13/95	74.54	2966.79	01/28/96	73.64	2967.69	03/14/96	72.51	2968.82
10/29/95	76.03	2965.30	12/14/95	74.62	2966.71	01/29/96	73.74	2967.59	03/15/96	72.33	2969.00
10/30/95	76.08	2965.25	12/15/95	74.69	2966.64	01/30/96	73.85	2967.48	03/16/96	72.35	2968.98
10/31/95	75.94	2965.39	12/16/95	74.73	2966.60	01/31/96	73.78	2967.55	03/17/96	72.34	2968.99
11/01/95	76.07	2965.26	12/17/95	74.65	2966.68	02/01/96	73.81	2967.52	03/18/96	72.40	2968.93
11/02/95	76.11	2965.22	12/18/95	74.48	2966.85	02/02/96	73.82	2967.51	03/19/96	72.33	2969.00
11/03/95	76.10	2965.23	12/19/95	74.62	2966.71	02/03/96	73.85	2967.48	03/20/96	72.26	2969.07

Groundwater Hydrograph

Well Identification

FVGSA2 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/21/96	72.16	2969.17	05/06/96	71.06	2970.27	06/21/96	71.68	2969.65	08/06/96	74.60	2966.73
03/22/96	72.07	2969.26	05/07/96	70.93	2970.40	06/22/96	71.65	2969.68	08/07/96	74.44	2966.89
03/23/96	72.13	2969.20	05/08/96	71.01	2970.32	06/23/96	71.32	2970.01	08/08/96	74.63	2966.70
03/24/96	72.24	2969.09	05/09/96	70.99	2970.34	06/24/96	70.99	2970.34	08/09/96	72.75	2968.58
03/25/96	72.27	2969.06	05/10/96	71.05	2970.28	06/25/96	70.76	2970.57	08/10/96	75.46	2965.87
03/26/96	72.10	2969.23	05/11/96	71.06	2970.27	06/26/96	70.56	2970.77	08/11/96	75.62	2965.71
03/27/96	72.07	2969.26	05/12/96	70.99	2970.34	06/27/96	70.50	2970.83	08/12/96	75.69	2965.64
03/28/96	72.04	2969.29	05/13/96	70.81	2970.52	06/28/96	70.51	2970.82	08/13/96	75.96	2965.37
03/29/96	71.96	2969.37	05/14/96	70.79	2970.54	06/29/96	70.52	2970.81	08/14/96	75.96	2965.37
03/30/96	71.97	2969.36	05/15/96	71.13	2970.20	06/30/96	70.65	2970.68	08/15/96	75.35	2965.98
03/31/96	71.99	2969.34	05/16/96	71.24	2970.09	07/01/96	70.84	2970.49	08/16/96	75.05	2966.28
04/01/96	71.81	2969.52	05/17/96	71.14	2970.19	07/02/96	71.14	2970.19	08/17/96	75.02	2966.31
04/02/96	71.79	2969.54	05/18/96	70.62	2970.71	07/03/96	71.19	2970.14	08/18/96	74.90	2966.43
04/03/96	72.07	2969.26	05/19/96	70.42	2970.91	07/04/96	71.49	2969.84	08/19/96	74.93	2966.40
04/04/96	72.12	2969.21	05/20/96	70.41	2970.92	07/05/96	71.80	2969.53	08/20/96	75.04	2966.29
04/05/96	72.18	2969.15	05/21/96	70.27	2971.06	07/06/96	71.91	2969.42	08/21/96	74.77	2966.56
04/06/96	72.16	2969.17	05/22/96	70.22	2971.11	07/07/96	72.37	2968.96	08/22/96	74.71	2966.62
04/07/96	72.09	2969.24	05/23/96	70.17	2971.16	07/08/96	72.63	2968.70	08/23/96	74.80	2966.53
04/08/96	72.09	2969.24	05/24/96	70.23	2971.10	07/09/96	72.86	2968.47	08/24/96	75.12	2966.21
04/09/96	71.97	2969.36	05/25/96	70.09	2971.24	07/10/96	73.48	2967.85	08/25/96	75.23	2966.10
04/10/96	71.93	2969.40	05/26/96	69.92	2971.41	07/11/96	73.81	2967.52	08/26/96	75.48	2965.85
04/11/96	71.82	2969.51	05/27/96	69.88	2971.45	07/12/96	74.35	2966.98	08/27/96	75.58	2965.75
04/12/96	71.77	2969.56	05/28/96	69.84	2971.49	07/13/96	74.22	2967.11	08/28/96	75.69	2965.64
04/13/96	71.78	2969.55	05/29/96	69.73	2971.60	07/14/96	74.45	2966.88	08/29/96	75.38	2965.95
04/14/96	71.86	2969.47	05/30/96	69.59	2971.74	07/15/96	74.80	2966.53	08/30/96	75.32	2966.01
04/15/96	71.73	2969.60	05/31/96	69.65	2971.68	07/16/96	74.72	2966.61	08/31/96	75.25	2966.08
04/16/96	71.57	2969.76	06/01/96	69.80	2971.53	07/17/96	75.24	2966.09	09/01/96	74.96	2966.37
04/17/96	71.49	2969.84	06/02/96	69.79	2971.54	07/18/96	74.98	2966.35	09/02/96	74.95	2966.38
04/18/96	71.57	2969.76	06/03/96	69.70	2971.63	07/19/96	74.92	2966.41	09/03/96	75.31	2966.02
04/19/96	71.57	2969.76	06/04/96	69.75	2971.58	07/20/96	74.87	2966.46	09/04/96	74.71	2966.62
04/20/96	71.58	2969.75	06/05/96	69.51	2971.82	07/21/96	75.00	2966.33	09/05/96	74.42	2966.91
04/21/96	71.54	2969.79	06/06/96	69.65	2971.68	07/22/96	75.67	2965.66	09/06/96	74.35	2966.98
04/22/96	71.58	2969.75	06/07/96	69.72	2971.61	07/23/96	76.40	2964.93	09/07/96	74.19	2967.14
04/23/96	71.43	2969.90	06/08/96	69.72	2971.61	07/24/96	76.58	2964.75	09/08/96	74.10	2967.23
04/24/96	71.21	2970.12	06/09/96	69.80	2971.53	07/25/96	76.75	2964.58	09/09/96	74.13	2967.20
04/25/96	71.29	2970.04	06/10/96	70.03	2971.30	07/26/96	76.71	2964.62	09/10/96	74.23	2967.10
04/26/96	71.26	2970.07	06/11/96	70.15	2971.18	07/27/96	77.02	2964.31	09/11/96	74.25	2967.08
04/27/96	71.32	2970.01	06/12/96	70.24	2971.09	07/28/96	77.06	2964.27	09/12/96	74.21	2967.12
04/28/96	71.31	2970.02	06/13/96	70.62	2970.71	07/29/96	77.29	2964.04	09/13/96	74.09	2967.24
04/29/96	71.24	2970.09	06/14/96	70.93	2970.40	07/30/96	76.97	2964.36	09/14/96	74.02	2967.31
04/30/96	71.13	2970.20	06/15/96	70.97	2970.36	07/31/96	76.27	2965.06	09/15/96	73.86	2967.47
05/01/96	71.07	2970.26	06/16/96	71.21	2970.12	08/01/96	76.37	2964.96	09/16/96	73.91	2967.42
05/02/96	70.97	2970.36	06/17/96	71.22	2970.11	08/02/96	76.39	2964.94	09/17/96	73.85	2967.48
05/03/96	71.05	2970.28	06/18/96	70.97	2970.36	08/03/96	75.82	2965.51	09/18/96	73.67	2967.66
05/04/96	71.08	2970.25	06/19/96	71.04	2970.29	08/04/96	75.42	2965.91	09/19/96	73.60	2967.73
05/05/96	71.13	2970.20	06/20/96	71.30	2970.03	08/05/96	74.75	2966.58	09/20/96	73.50	2967.83

Groundwater Hydrograph

Well Identification

FVGSA2 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/21/96	73.46	2967.87	11/06/96	72.96	2968.37	12/22/96	73.11	2968.22	02/06/97	73.36	2967.97
09/22/96	73.45	2967.88	11/07/96	73.05	2968.28	12/23/96	73.25	2968.08	02/07/97	73.34	2967.99
09/23/96	73.53	2967.80	11/08/96	73.11	2968.22	12/24/96	73.30	2968.03	02/08/97	73.30	2968.03
09/24/96	73.38	2967.95	11/09/96	73.29	2968.04	12/25/96	73.19	2968.14	02/09/97	73.23	2968.10
09/25/96	73.27	2968.06	11/10/96	73.11	2968.22	12/26/96	73.10	2968.23	02/10/97	73.21	2968.12
09/26/96	73.24	2968.09	11/11/96	73.07	2968.26	12/27/96	72.96	2968.37	02/11/97	73.18	2968.15
09/27/96	73.25	2968.08	11/12/96	73.15	2968.18	12/28/96	73.13	2968.20	02/12/97	73.03	2968.30
09/28/96	73.06	2968.27	11/13/96	73.08	2968.25	12/29/96	73.10	2968.23	02/13/97	73.19	2968.14
09/29/96	73.02	2968.31	11/14/96	73.01	2968.32	12/30/96	73.16	2968.17	02/14/97	73.18	2968.15
09/30/96	72.99	2968.34	11/15/96	73.01	2968.32	12/31/96	73.09	2968.24	02/15/97	73.22	2968.11
10/01/96	73.06	2968.27	11/16/96	73.03	2968.30	01/01/97	73.00	2968.33	02/16/97	73.08	2968.25
10/02/96	73.07	2968.26	11/17/96	73.02	2968.31	01/02/97	73.11	2968.22	02/17/97	73.05	2968.28
10/03/96	73.10	2968.23	11/18/96	72.93	2968.40	01/03/97	73.05	2968.28	02/18/97	73.19	2968.14
10/04/96	72.94	2968.39	11/19/96	72.98	2968.35	01/04/97	73.18	2968.15	02/19/97	73.07	2968.26
10/05/96	72.97	2968.36	11/20/96	73.06	2968.27	01/05/97	73.22	2968.11	02/20/97	73.26	2968.07
10/06/96	72.95	2968.38	11/21/96	73.07	2968.26	01/06/97	73.29	2968.04	02/21/97	73.29	2968.04
10/07/96	73.04	2968.29	11/22/96	73.07	2968.26	01/07/97	73.14	2968.19	02/22/97	73.10	2968.23
10/08/96	73.00	2968.33	11/23/96	73.20	2968.13	01/08/97	73.17	2968.16	02/23/97	73.10	2968.23
10/09/96	73.07	2968.26	11/24/96	73.28	2968.05	01/09/97	73.10	2968.23	02/24/97	73.10	2968.23
10/10/96	72.98	2968.35	11/25/96	73.24	2968.09	01/10/97	73.11	2968.22	02/25/97	73.14	2968.19
10/11/96	72.91	2968.42	11/26/96	73.33	2968.00	01/11/97	73.12	2968.21	02/26/97	72.93	2968.40
10/12/96	73.01	2968.32	11/27/96	73.22	2968.11	01/12/97	73.26	2968.07	02/27/97	72.89	2968.44
10/13/96	72.98	2968.35	11/28/96	73.07	2968.26	01/13/97	73.19	2968.14	02/28/97	72.99	2968.34
10/14/96	73.07	2968.26	11/29/96	73.18	2968.15	01/14/97	73.20	2968.13	03/01/97	72.97	2968.36
10/15/96	72.97	2968.36	11/30/96	73.17	2968.16	01/15/97	73.23	2968.10	03/02/97	72.96	2968.37
10/16/96	73.07	2968.26	12/01/96	73.09	2968.24	01/16/97	73.30	2968.03	03/03/97	72.98	2968.35
10/17/96	73.00	2968.33	12/02/96	73.24	2968.09	01/17/97	73.24	2968.09	03/04/97	73.07	2968.26
10/18/96	72.79	2968.54	12/03/96	73.25	2968.08	01/18/97	73.20	2968.13	03/05/97	73.15	2968.18
10/19/96	72.78	2968.55	12/04/96	73.31	2968.02	01/19/97	73.09	2968.24	03/06/97	73.13	2968.20
10/20/96	72.91	2968.42	12/05/96	73.07	2968.26	01/20/97	73.01	2968.32	03/07/97	73.11	2968.22
10/21/96	73.06	2968.27	12/06/96	73.23	2968.10	01/21/97	73.00	2968.33	03/08/97	73.13	2968.20
10/22/96	72.90	2968.43	12/07/96	73.31	2968.02	01/22/97	73.03	2968.30	03/09/97	73.02	2968.31
10/23/96	72.87	2968.46	12/08/96	73.20	2968.13	01/23/97	73.01	2968.32	03/10/97	73.03	2968.30
10/24/96	72.70	2968.63	12/09/96	73.20	2968.13	01/24/97	73.18	2968.15	03/11/97	73.01	2968.32
10/25/96	72.79	2968.54	12/10/96	73.16	2968.17	01/25/97	73.18	2968.15	03/12/97	73.04	2968.29
10/26/96	73.12	2968.21	12/11/96	73.30	2968.03	01/26/97	73.27	2968.06	03/13/97	73.03	2968.30
10/27/96	73.09	2968.24	12/12/96	73.34	2967.99	01/27/97	73.39	2967.94	03/14/97	73.08	2968.25
10/28/96	72.88	2968.45	12/13/96	73.34	2967.99	01/28/97	73.37	2967.96	03/15/97	72.93	2968.40
10/29/96	72.91	2968.42	12/14/96	73.47	2967.86	01/29/97	73.39	2967.94	03/16/97	72.92	2968.41
10/30/96	72.98	2968.35	12/15/96	73.45	2967.88	01/30/97	73.29	2968.04	03/17/97	73.04	2968.29
10/31/96	73.07	2968.26	12/16/96	73.41	2967.92	01/31/97	73.06	2968.27	03/18/97	73.09	2968.24
11/01/96	73.07	2968.26	12/17/96	73.58	2967.75	02/01/97	73.11	2968.22	03/19/97	73.06	2968.27
11/02/96	72.99	2968.34	12/18/96	73.40	2967.93	02/02/97	73.18	2968.15	03/20/97	73.03	2968.30
11/03/96	72.90	2968.43	12/19/96	73.35	2967.98	02/03/97	73.22	2968.11	03/21/97	73.12	2968.21
11/04/96	72.90	2968.43	12/20/96	73.07	2968.26	02/04/97	73.30	2968.03	03/22/97	73.00	2968.33
11/05/96	72.98	2968.35	12/21/96	73.04	2968.29	02/05/97	73.32	2968.01	03/23/97	73.00	2968.33

Groundwater Hydrograph

Well Identification

FVGSA2 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/24/97	72.90	2968.43	05/09/97	69.85	2971.48	06/24/97	68.54	2972.79	08/09/97	72.26	2969.07
03/25/97	72.88	2968.45	05/10/97	69.80	2971.53	06/25/97	68.43	2972.90	08/10/97	72.18	2969.15
03/26/97	72.72	2968.61	05/11/97	69.78	2971.55	06/26/97	68.38	2972.95	08/11/97	72.54	2968.79
03/27/97	72.65	2968.68	05/12/97	69.63	2971.70	06/27/97	68.48	2972.85	08/12/97	72.73	2968.60
03/28/97	72.63	2968.70	05/13/97	69.48	2971.85	06/28/97	68.48	2972.85	08/13/97	72.90	2968.43
03/29/97	72.59	2968.74	05/14/97	69.46	2971.87	06/29/97	68.48	2972.85	08/14/97	72.35	2968.98
03/30/97	72.44	2968.89	05/15/97	69.45	2971.88	06/30/97	68.48	2972.85	08/15/97	72.21	2969.12
03/31/97	72.30	2969.03	05/16/97	69.40	2971.93	07/01/97	68.47	2972.86	08/16/97	71.97	2969.36
04/01/97	72.45	2968.88	05/17/97	69.29	2972.04	07/02/97	68.46	2972.87	08/17/97	71.89	2969.44
04/02/97	72.52	2968.81	05/18/97	69.34	2971.99	07/03/97	68.47	2972.86	08/18/97	72.35	2968.98
04/03/97	72.26	2969.07	05/19/97	69.41	2971.92	07/04/97	68.48	2972.85	08/19/97	72.13	2969.20
04/04/97	72.19	2969.14	05/20/97	69.41	2971.92	07/05/97	68.48	2972.85	08/20/97	71.72	2969.61
04/05/97	72.26	2969.07	05/21/97	69.48	2971.85	07/06/97	68.48	2972.85	08/21/97	72.48	2968.85
04/06/97	72.13	2969.20	05/22/97	69.76	2971.57	07/07/97	68.48	2972.85	08/22/97	72.56	2968.77
04/07/97	72.11	2969.22	05/23/97	69.88	2971.45	07/08/97	68.48	2972.85	08/23/97	72.41	2968.92
04/08/97	72.04	2969.29	05/24/97	69.60	2971.73	07/09/97	69.03	2972.30	08/24/97	72.47	2968.86
04/09/97	71.98	2969.35	05/25/97	69.35	2971.98	07/10/97	69.72	2971.61	08/25/97	71.96	2969.37
04/10/97	71.96	2969.37	05/26/97	69.22	2972.11	07/11/97	69.59	2971.74	08/26/97	71.77	2969.56
04/11/97	71.92	2969.41	05/27/97	69.16	2972.17	07/12/97	69.61	2971.72	08/27/97	71.90	2969.43
04/12/97	71.76	2969.57	05/28/97	68.97	2972.36	07/13/97	69.79	2971.54	08/28/97	71.87	2969.46
04/13/97	71.63	2969.70	05/29/97	69.28	2972.05	07/14/97	69.86	2971.47	08/29/97	71.80	2969.53
04/14/97	71.58	2969.75	05/30/97	69.11	2972.22	07/15/97	69.86	2971.47	08/30/97	71.79	2969.54
04/15/97	71.67	2969.66	05/31/97	68.79	2972.54	07/16/97	69.86	2971.47	08/31/97	72.02	2969.31
04/16/97	71.53	2969.80	06/01/97	68.52	2972.81	07/17/97	69.86	2971.47	09/01/97	72.12	2969.21
04/17/97	71.54	2969.79	06/02/97	68.50	2972.83	07/18/97	69.86	2971.47	09/02/97	72.33	2969.00
04/18/97	71.38	2969.95	06/03/97	68.62	2972.71	07/19/97	69.86	2971.47	09/03/97	72.14	2969.19
04/19/97	71.33	2970.00	06/04/97	68.50	2972.83	07/20/97	69.86	2971.47	09/04/97	71.80	2969.53
04/20/97	71.17	2970.16	06/05/97	68.34	2972.99	07/21/97	69.86	2971.47	09/05/97	71.73	2969.60
04/21/97	71.24	2970.09	06/06/97	68.32	2973.01	07/22/97	69.86	2971.47	09/06/97	71.65	2969.68
04/22/97	71.16	2970.17	06/07/97	68.30	2973.03	07/23/97	69.86	2971.47	09/07/97	71.66	2969.67
04/23/97	71.07	2970.26	06/08/97	68.34	2972.99	07/24/97	71.53	2969.80	09/08/97	71.73	2969.60
04/24/97	71.07	2970.26	06/09/97	68.41	2972.92	07/25/97	72.07	2969.26	09/09/97	71.87	2969.46
04/25/97	71.09	2970.24	06/10/97	68.80	2972.53	07/26/97	72.52	2968.81	09/10/97	71.86	2969.47
04/26/97	70.99	2970.34	06/11/97	68.89	2972.44	07/27/97	72.76	2968.57	09/11/97	71.58	2969.75
04/27/97	70.72	2970.61	06/12/97	68.67	2972.66	07/28/97	72.96	2968.37	09/12/97	71.47	2969.86
04/28/97	70.59	2970.74	06/13/97	68.65	2972.68	07/29/97	73.55	2967.78	09/13/97	71.51	2969.82
04/29/97	70.51	2970.82	06/14/97	68.72	2972.61	07/30/97	73.17	2968.16	09/14/97	71.44	2969.89
04/30/97	70.38	2970.95	06/15/97	68.86	2972.47	07/31/97	72.50	2968.83	09/15/97	71.36	2969.97
05/01/97	70.41	2970.92	06/16/97	68.86	2972.47	08/01/97	72.58	2968.75	09/16/97	71.23	2970.10
05/02/97	70.39	2970.94	06/17/97	68.79	2972.54	08/02/97	72.61	2968.72	09/17/97	71.14	2970.19
05/03/97	70.37	2970.96	06/18/97	68.82	2972.51	08/03/97	72.62	2968.71	09/18/97	71.47	2969.86
05/04/97	70.32	2971.01	06/19/97	68.77	2972.56	08/04/97	73.17	2968.16	09/19/97	71.59	2969.74
05/05/97	70.17	2971.16	06/20/97	68.88	2972.45	08/05/97	73.24	2968.09	09/20/97	71.58	2969.75
05/06/97	69.99	2971.34	06/21/97	68.81	2972.52	08/06/97	73.07	2968.26	09/21/97	71.43	2969.90
05/07/97	69.99	2971.34	06/22/97	68.86	2972.47	08/07/97	73.34	2967.99	09/22/97	71.49	2969.84
05/08/97	69.89	2971.44	06/23/97	68.66	2972.67	08/08/97	72.61	2968.72	09/23/97	71.51	2969.82

Groundwater Hydrograph

Well Identification

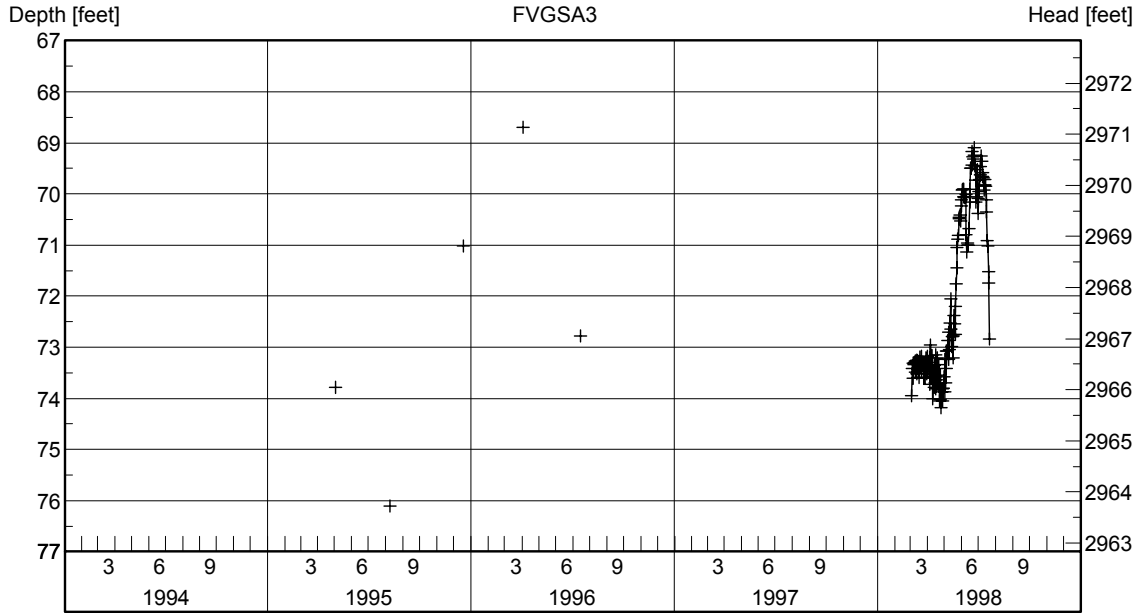
FVGSA2 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/24/97	71.47	2969.86	11/09/97	71.88	2969.45	12/25/97	73.62	2967.71	02/09/98	74.32	2967.01
09/25/97	71.41	2969.92	11/10/97	71.83	2969.50	12/26/97	73.61	2967.72	02/10/98	74.46	2966.87
09/26/97	71.29	2970.04	11/11/97	71.85	2969.48	12/27/97	73.36	2967.97	02/11/98	74.20	2967.13
09/27/97	71.39	2969.94	11/12/97	71.92	2969.41	12/28/97	73.62	2967.71	02/12/98	74.32	2967.01
09/28/97	71.42	2969.91	11/13/97	71.94	2969.39	12/29/97	73.27	2968.06	02/13/98	74.33	2967.00
09/29/97	71.37	2969.96	11/14/97	72.00	2969.33	12/30/97	74.04	2967.29	02/14/98	74.04	2967.29
09/30/97	71.25	2970.08	11/15/97	72.08	2969.25	12/31/97	73.54	2967.79	02/15/98	74.18	2967.15
10/01/97	71.30	2970.03	11/16/97	72.13	2969.20	01/01/98	73.51	2967.82	02/16/98	73.98	2967.35
10/02/97	71.27	2970.06	11/17/97	71.88	2969.45	01/02/98	73.65	2967.68	02/17/98	74.42	2966.91
10/03/97	71.31	2970.02	11/18/97	71.89	2969.44	01/03/98	73.50	2967.83	02/18/98	74.52	2966.81
10/04/97	71.19	2970.14	11/19/97	72.24	2969.09	01/04/98	73.68	2967.65	02/19/98	74.32	2967.01
10/05/97	70.72	2970.61	11/20/97	71.95	2969.38	01/05/98	73.95	2967.38	02/20/98	74.45	2966.88
10/06/97	70.94	2970.39	11/21/97	72.21	2969.12	01/06/98	73.92	2967.41	02/21/98	74.32	2967.01
10/07/97	71.95	2969.38	11/22/97	72.21	2969.12	01/07/98	73.85	2967.48	02/22/98	74.20	2967.13
10/08/97	71.51	2969.82	11/23/97	72.08	2969.25	01/08/98	74.07	2967.26	02/23/98	74.49	2966.84
10/09/97	71.35	2969.98	11/24/97	72.10	2969.23	01/09/98	73.81	2967.52	02/24/98	74.50	2966.83
10/10/97	71.27	2970.06	11/25/97	72.21	2969.12	01/10/98	74.03	2967.30	02/25/98	74.40	2966.93
10/11/97	71.19	2970.14	11/26/97	72.13	2969.20	01/11/98	74.22	2967.11	02/26/98	74.63	2966.70
10/12/97	71.34	2969.99	11/27/97	72.18	2969.15	01/12/98	73.97	2967.36	02/27/98	74.70	2966.63
10/13/97	71.43	2969.90	11/28/97	72.27	2969.06	01/13/98	74.29	2967.04	02/28/98	74.47	2966.86
10/14/97	71.38	2969.95	11/29/97	72.31	2969.02	01/14/98	73.97	2967.36	03/01/98	74.65	2966.68
10/15/97	71.43	2969.90	11/30/97	72.34	2968.99	01/15/98	73.84	2967.49	03/02/98	74.60	2966.73
10/16/97	71.38	2969.95	12/01/97	72.47	2968.86	01/16/98	74.09	2967.24	03/03/98	74.07	2967.26
10/17/97	71.29	2970.04	12/02/97	72.52	2968.81	01/17/98	73.79	2967.54			
10/18/97	71.35	2969.98	12/03/97	72.54	2968.79	01/18/98	73.96	2967.37			
10/19/97	71.40	2969.93	12/04/97	72.56	2968.77	01/19/98	73.95	2967.38			
10/20/97	71.49	2969.84	12/05/97	72.56	2968.77	01/20/98	73.87	2967.46			
10/21/97	71.47	2969.86	12/06/97	72.53	2968.80	01/21/98	74.00	2967.33			
10/22/97	71.37	2969.96	12/07/97	72.45	2968.88	01/22/98	73.97	2967.36			
10/23/97	71.37	2969.96	12/08/97	72.52	2968.81	01/23/98	74.17	2967.16			
10/24/97	71.60	2969.73	12/09/97	72.74	2968.59	01/24/98	73.80	2967.53			
10/25/97	71.56	2969.77	12/10/97	72.87	2968.46	01/25/98	74.14	2967.19			
10/26/97	71.44	2969.89	12/11/97	73.03	2968.30	01/26/98	74.20	2967.13			
10/27/97	71.43	2969.90	12/12/97	73.04	2968.29	01/27/98	73.92	2967.41			
10/28/97	71.44	2969.89	12/13/97	73.00	2968.33	01/28/98	74.26	2967.07			
10/29/97	71.36	2969.97	12/14/97	72.86	2968.47	01/29/98	74.19	2967.14			
10/30/97	71.42	2969.91	12/15/97	72.94	2968.39	01/30/98	73.99	2967.34			
10/31/97	71.57	2969.76	12/16/97	72.94	2968.39	01/31/98	74.45	2966.88			
11/01/97	71.73	2969.60	12/17/97	72.97	2968.36	02/01/98	74.21	2967.12			
11/02/97	71.78	2969.55	12/18/97	73.01	2968.32	02/02/98	73.99	2967.34			
11/03/97	71.66	2969.67	12/19/97	73.39	2967.94	02/03/98	74.25	2967.08			
11/04/97	71.74	2969.59	12/20/97	73.00	2968.33	02/04/98	74.20	2967.13			
11/05/97	71.73	2969.60	12/21/97	73.18	2968.15	02/05/98	74.04	2967.29			
11/06/97	71.69	2969.64	12/22/97	73.45	2967.88	02/06/98	74.23	2967.10			
11/07/97	71.71	2969.62	12/23/97	73.19	2968.14	02/07/98	74.23	2967.10			
11/08/97	71.86	2969.47	12/24/97	73.46	2967.87	02/08/98	74.00	2967.33			

Groundwater Hydrograph

Well Identification FVGSA3	MBMG Site # M:148189	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well A3	
Location 30N 20W 19 DAAC	Ground Surface Elev. (ft) 3037.23	Measuring Point Elev. (ft) 3039.83	Well Depth below m.p. (ft) 345.60



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
05/03/95	73.78	2966.05	03/19/98	73.38	2966.45	04/09/98	73.16	2966.67	04/30/98	73.58	2966.25
08/08/95	76.10	2963.73	03/20/98	73.18	2966.65	04/10/98	74.01	2965.82	05/01/98	73.87	2965.96
12/18/95	71.02	2968.81	03/21/98	73.47	2966.36	04/11/98	73.52	2966.31	05/02/98	73.24	2966.59
04/03/96	68.69	2971.14	03/22/98	73.35	2966.48	04/12/98	73.35	2966.48	05/03/98	73.70	2966.13
07/16/96	72.78	2967.05	03/23/98	73.29	2966.54	04/13/98	73.78	2966.05	05/04/98	73.07	2966.76
03/03/98	73.95	2965.88	03/24/98	73.61	2966.22	04/14/98	73.70	2966.13	05/05/98	73.41	2966.42
03/04/98	73.41	2966.42	03/25/98	73.40	2966.43	04/15/98	73.15	2966.68	05/06/98	73.07	2966.76
03/05/98	73.31	2966.52	03/26/98	73.32	2966.51	04/16/98	73.81	2966.02	05/07/98	72.86	2966.97
03/06/98	73.60	2966.23	03/27/98	73.59	2966.24	04/17/98	73.72	2966.11	05/08/98	73.23	2966.60
03/07/98	73.34	2966.49	03/28/98	73.31	2966.52	04/18/98	73.20	2966.63	05/09/98	72.71	2967.12
03/08/98	73.30	2966.53	03/29/98	73.21	2966.62	04/19/98	73.64	2966.19	05/10/98	73.05	2966.78
03/09/98	73.49	2966.34	03/30/98	73.51	2966.32	04/20/98	73.72	2966.11	05/11/98	72.52	2967.31
03/10/98	73.26	2966.57	03/31/98	73.30	2966.53	04/21/98	73.34	2966.49	05/12/98	72.05	2967.78
03/11/98	73.33	2966.50	04/01/98	73.18	2966.65	04/22/98	74.05	2965.78	05/13/98	72.64	2967.19
03/12/98	73.25	2966.58	04/02/98	73.42	2966.41	04/23/98	74.02	2965.81	05/14/98	72.98	2966.85
03/13/98	73.52	2966.31	04/03/98	73.36	2966.47	04/24/98	73.55	2966.28	05/15/98	72.79	2967.04
03/14/98	73.27	2966.56	04/04/98	73.21	2966.62	04/25/98	74.18	2965.65	05/16/98	72.77	2967.06
03/15/98	73.29	2966.54	04/05/98	73.73	2966.10	04/26/98	73.87	2965.96	05/17/98	73.21	2966.62
03/16/98	73.59	2966.24	04/06/98	72.96	2966.87	04/27/98	73.81	2966.02	05/18/98	72.38	2967.45
03/17/98	73.28	2966.55	04/07/98	73.56	2966.27	04/28/98	74.05	2965.78	05/19/98	72.54	2967.29
03/18/98	73.19	2966.64	04/08/98	73.60	2966.23	04/29/98	73.79	2966.04	05/20/98	72.75	2967.08

Groundwater Hydrograph

Well Identification

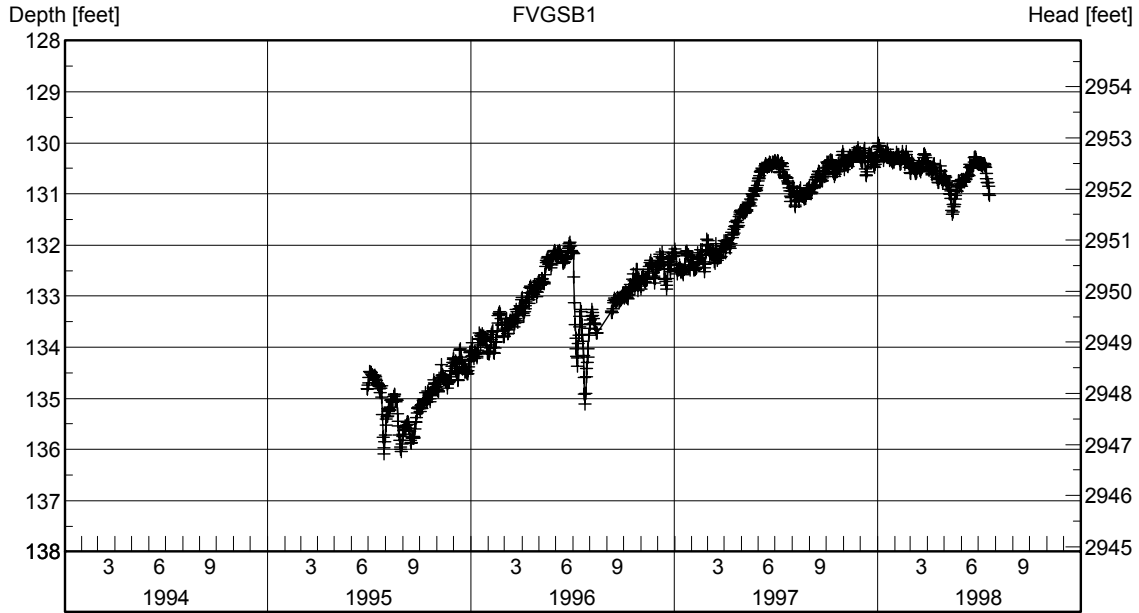
FVGSA3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
05/21/98	72.20	2967.63	07/06/98	69.25	2970.58						
05/22/98	71.75	2968.08	07/07/98	69.36	2970.47						
05/23/98	71.44	2968.39	07/08/98	69.58	2970.25						
05/24/98	71.05	2968.78	07/09/98	69.65	2970.18						
05/25/98	70.89	2968.94	07/10/98	69.69	2970.14						
05/26/98	70.81	2969.02	07/11/98	69.92	2969.91						
05/27/98	70.45	2969.38	07/12/98	69.82	2970.01						
05/28/98	70.49	2969.34	07/13/98	69.71	2970.12						
05/29/98	70.41	2969.42	07/14/98	69.85	2969.98						
05/30/98	70.53	2969.30	07/15/98	70.11	2969.72						
05/31/98	70.23	2969.60	07/16/98	70.35	2969.48						
06/01/98	70.11	2969.72	07/17/98	70.92	2968.91						
06/02/98	69.92	2969.91	07/18/98	71.02	2968.81						
06/03/98	69.91	2969.92	07/19/98	71.52	2968.31						
06/04/98	70.06	2969.77	07/20/98	71.74	2968.09						
06/05/98	69.91	2969.92	07/21/98	72.83	2967.00						
06/06/98	70.07	2969.76									
06/07/98	70.06	2969.77									
06/08/98	70.01	2969.82									
06/09/98	70.80	2969.03									
06/10/98	71.13	2968.70									
06/11/98	71.00	2968.83									
06/12/98	70.96	2968.87									
06/13/98	71.00	2968.83									
06/14/98	70.67	2969.16									
06/15/98	70.16	2969.67									
06/16/98	69.90	2969.93									
06/17/98	69.49	2970.34									
06/18/98	69.50	2970.33									
06/19/98	69.44	2970.39									
06/20/98	69.16	2970.67									
06/21/98	69.27	2970.56									
06/22/98	69.32	2970.51									
06/23/98	69.09	2970.74									
06/24/98	69.24	2970.59									
06/25/98	69.45	2970.38									
06/26/98	69.73	2970.10									
06/27/98	70.16	2969.67									
06/28/98	70.05	2969.78									
06/29/98	69.52	2970.31									
06/30/98	70.09	2969.74									
07/01/98	70.38	2969.45									
07/02/98	69.95	2969.88									
07/03/98	69.71	2970.12									
07/04/98	69.62	2970.21									
07/05/98	69.46	2970.37									

Groundwater Hydrograph

Well Identification FVGSB1	MBMG Site # M:148190	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well B1	
Location 30N 21W 21 CAAC	Ground Surface Elev. (ft) 3080.00	Measuring Point Elev. (ft) 3082.40	Well Depth below m.p. (ft) 279.90



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/28/95	134.81	2947.59	07/19/95	134.75	2947.65	08/09/95	135.16	2947.24	08/30/95	135.89	2946.51
06/29/95	134.81	2947.59	07/20/95	134.77	2947.63	08/10/95	135.03	2947.37	08/31/95	135.75	2946.65
06/30/95	134.74	2947.66	07/21/95	134.81	2947.59	08/11/95	135.04	2947.36	09/01/95	135.70	2946.70
07/01/95	134.69	2947.71	07/22/95	134.89	2947.51	08/12/95	135.06	2947.34	09/02/95	135.62	2946.78
07/02/95	134.59	2947.81	07/23/95	134.79	2947.61	08/13/95	135.07	2947.33	09/03/95	135.59	2946.81
07/03/95	134.47	2947.93	07/24/95	134.75	2947.65	08/14/95	135.03	2947.37	09/04/95	135.54	2946.86
07/04/95	134.48	2947.92	07/25/95	134.98	2947.42	08/15/95	134.96	2947.44	09/05/95	135.56	2946.84
07/05/95	134.49	2947.91	07/26/95	135.32	2947.08	08/16/95	134.91	2947.49	09/06/95	135.63	2946.77
07/06/95	134.50	2947.90	07/27/95	135.76	2946.64	08/17/95	134.93	2947.47	09/07/95	135.52	2946.88
07/07/95	134.53	2947.87	07/28/95	136.08	2946.32	08/18/95	135.05	2947.35	09/08/95	135.46	2946.94
07/08/95	134.55	2947.85	07/29/95	135.96	2946.44	08/19/95	135.07	2947.33	09/09/95	135.47	2946.93
07/09/95	134.57	2947.83	07/30/95	135.85	2946.55	08/20/95	135.04	2947.36	09/10/95	135.46	2946.94
07/10/95	134.59	2947.81	07/31/95	135.71	2946.69	08/21/95	135.04	2947.36	09/11/95	135.51	2946.89
07/11/95	134.56	2947.84	08/01/95	135.52	2946.88	08/22/95	135.30	2947.10	09/12/95	135.58	2946.82
07/12/95	134.54	2947.86	08/02/95	135.41	2946.99	08/23/95	135.45	2946.95	09/13/95	135.64	2946.76
07/13/95	134.57	2947.83	08/03/95	135.36	2947.04	08/24/95	135.53	2946.87	09/14/95	135.82	2946.58
07/14/95	134.62	2947.78	08/04/95	135.34	2947.06	08/25/95	135.72	2946.68	09/15/95	135.88	2946.52
07/15/95	134.65	2947.75	08/05/95	135.25	2947.15	08/26/95	135.82	2946.58	09/16/95	135.86	2946.54
07/16/95	134.69	2947.71	08/06/95	135.20	2947.20	08/27/95	135.95	2946.45	09/17/95	135.77	2946.63
07/17/95	134.73	2947.67	08/07/95	135.22	2947.18	08/28/95	136.00	2946.40	09/18/95	135.77	2946.63
07/18/95	134.72	2947.68	08/08/95	135.22	2947.18	08/29/95	136.04	2946.36	09/19/95	135.74	2946.66

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/20/95	135.78	2946.62	11/05/95	134.60	2947.80	12/21/95	134.49	2947.91	02/05/96	134.02	2948.38
09/21/95	135.77	2946.63	11/06/95	134.67	2947.73	12/22/95	134.43	2947.97	02/06/96	133.85	2948.55
09/22/95	135.60	2946.80	11/07/95	134.68	2947.72	12/23/95	134.45	2947.95	02/07/96	133.75	2948.65
09/23/95	135.46	2946.94	11/08/95	134.59	2947.81	12/24/95	134.48	2947.92	02/08/96	133.71	2948.69
09/24/95	135.47	2946.93	11/09/95	134.34	2948.06	12/25/95	134.52	2947.88	02/09/96	133.67	2948.73
09/25/95	135.38	2947.02	11/10/95	134.54	2947.86	12/26/95	134.51	2947.89	02/10/96	134.00	2948.40
09/26/95	135.28	2947.12	11/11/95	134.54	2947.86	12/27/95	134.45	2947.95	02/11/96	134.10	2948.30
09/27/95	135.20	2947.20	11/12/95	134.58	2947.82	12/28/95	134.38	2948.02	02/12/96	134.12	2948.28
09/28/95	135.18	2947.22	11/13/95	134.64	2947.76	12/29/95	134.24	2948.16	02/13/96	134.02	2948.38
09/29/95	135.16	2947.24	11/14/95	134.62	2947.78	12/30/95	134.08	2948.32	02/14/96	133.89	2948.51
09/30/95	135.19	2947.21	11/15/95	134.61	2947.79	12/31/95	134.10	2948.30	02/15/96	133.90	2948.50
10/01/95	135.20	2947.20	11/16/95	134.65	2947.75	01/01/96	134.26	2948.14	02/16/96	133.80	2948.60
10/02/95	135.25	2947.15	11/17/95	134.67	2947.73	01/02/96	134.17	2948.23	02/17/96	133.69	2948.71
10/03/95	135.14	2947.26	11/18/95	134.63	2947.77	01/03/96	133.91	2948.49	02/18/96	133.52	2948.88
10/04/95	135.13	2947.27	11/19/95	134.72	2947.68	01/04/96	134.06	2948.34	02/19/96	133.37	2949.03
10/05/95	135.19	2947.21	11/20/95	134.79	2947.61	01/05/96	134.16	2948.24	02/20/96	133.34	2949.06
10/06/95	135.11	2947.29	11/21/95	134.69	2947.71	01/06/96	134.22	2948.18	02/21/96	133.31	2949.09
10/07/95	135.03	2947.37	11/22/95	134.68	2947.72	01/07/96	134.13	2948.27	02/22/96	133.36	2949.04
10/08/95	135.05	2947.35	11/23/95	134.66	2947.74	01/08/96	134.09	2948.31	02/23/96	133.35	2949.05
10/09/95	135.00	2947.40	11/24/95	134.57	2947.83	01/09/96	134.10	2948.30	02/24/96	133.43	2948.97
10/10/95	135.00	2947.40	11/25/95	134.45	2947.95	01/10/96	134.13	2948.27	02/25/96	133.56	2948.84
10/11/95	134.88	2947.52	11/26/95	134.46	2947.94	01/11/96	134.21	2948.19	02/26/96	133.57	2948.83
10/12/95	135.02	2947.38	11/27/95	134.53	2947.87	01/12/96	134.18	2948.22	02/27/96	133.67	2948.73
10/13/95	135.08	2947.32	11/28/95	134.37	2948.03	01/13/96	134.06	2948.34	02/28/96	133.79	2948.61
10/14/95	135.06	2947.34	11/29/95	134.30	2948.10	01/14/96	134.00	2948.40	02/29/96	133.79	2948.61
10/15/95	135.00	2947.40	11/30/95	134.24	2948.16	01/15/96	133.84	2948.56	03/01/96	133.78	2948.62
10/16/95	134.85	2947.55	12/01/95	134.21	2948.19	01/16/96	133.72	2948.68	03/02/96	133.64	2948.76
10/17/95	134.88	2947.52	12/02/95	134.31	2948.09	01/17/96	133.84	2948.56	03/03/96	133.51	2948.89
10/18/95	134.95	2947.45	12/03/95	134.42	2947.98	01/18/96	133.96	2948.44	03/04/96	133.44	2948.96
10/19/95	135.07	2947.33	12/04/95	134.26	2948.14	01/19/96	133.76	2948.64	03/05/96	133.44	2948.96
10/20/95	135.01	2947.39	12/05/95	134.46	2947.94	01/20/96	133.79	2948.61	03/06/96	133.61	2948.79
10/21/95	134.89	2947.51	12/06/95	134.50	2947.90	01/21/96	133.73	2948.67	03/07/96	133.73	2948.67
10/22/95	134.92	2947.48	12/07/95	134.46	2947.94	01/22/96	133.87	2948.53	03/08/96	133.73	2948.67
10/23/95	134.92	2947.48	12/08/95	134.63	2947.77	01/23/96	133.83	2948.57	03/09/96	133.66	2948.74
10/24/95	134.85	2947.55	12/09/95	134.65	2947.75	01/24/96	133.77	2948.63	03/10/96	133.55	2948.85
10/25/95	134.80	2947.60	12/10/95	134.50	2947.90	01/25/96	133.82	2948.58	03/11/96	133.50	2948.90
10/26/95	134.64	2947.76	12/11/95	134.29	2948.11	01/26/96	133.88	2948.52	03/12/96	133.46	2948.94
10/27/95	134.70	2947.70	12/12/95	134.06	2948.34	01/27/96	133.81	2948.59	03/13/96	133.48	2948.92
10/28/95	134.72	2947.68	12/13/95	134.03	2948.37	01/28/96	133.83	2948.57	03/14/96	133.53	2948.87
10/29/95	134.78	2947.62	12/14/95	134.19	2948.21	01/29/96	133.95	2948.45	03/15/96	133.42	2948.98
10/30/95	134.82	2947.58	12/15/95	134.27	2948.13	01/30/96	134.11	2948.29	03/16/96	133.45	2948.95
10/31/95	134.77	2947.63	12/16/95	134.33	2948.07	01/31/96	134.10	2948.30	03/17/96	133.48	2948.92
11/01/95	134.83	2947.57	12/17/95	134.43	2947.97	02/01/96	134.08	2948.32	03/18/96	133.60	2948.80
11/02/95	134.84	2947.56	12/18/95	134.39	2948.01	02/02/96	134.11	2948.29	03/19/96	133.52	2948.88
11/03/95	134.87	2947.53	12/19/95	134.39	2948.01	02/03/96	134.13	2948.27	03/20/96	133.46	2948.94
11/04/95	134.85	2947.55	12/20/95	134.40	2948.00	02/04/96	134.07	2948.33	03/21/96	133.44	2948.96

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/22/96	133.26	2949.14	05/07/96	132.65	2949.75	06/22/96	132.21	2950.19	08/07/96	133.38	2949.02
03/23/96	133.30	2949.10	05/08/96	132.67	2949.73	06/23/96	132.14	2950.26	08/08/96	133.43	2948.97
03/24/96	133.48	2948.92	05/09/96	132.71	2949.69	06/24/96	132.06	2950.34	08/09/96	133.52	2948.88
03/25/96	133.51	2948.89	05/10/96	132.74	2949.66	06/25/96	132.03	2950.37	08/10/96	133.54	2948.86
03/26/96	133.37	2949.03	05/11/96	132.76	2949.64	06/26/96	131.97	2950.43	08/11/96	133.55	2948.85
03/27/96	133.35	2949.05	05/12/96	132.73	2949.67	06/27/96	131.94	2950.46	08/12/96	133.64	2948.76
03/28/96	133.24	2949.16	05/13/96	132.58	2949.82	06/28/96	132.01	2950.39	08/13/96	133.72	2948.68
03/29/96	133.18	2949.22	05/14/96	132.42	2949.98	06/29/96	132.10	2950.30	08/14/96	133.72	2948.68
03/30/96	133.20	2949.20	05/15/96	132.34	2950.06	06/30/96	132.13	2950.27	09/09/96	133.29	2949.11
03/31/96	133.21	2949.19	05/16/96	132.30	2950.10	07/01/96	132.13	2950.27	09/10/96	133.32	2949.08
04/01/96	133.07	2949.33	05/17/96	132.25	2950.15	07/02/96	132.15	2950.25	09/11/96	133.32	2949.08
04/02/96	133.02	2949.38	05/18/96	132.23	2950.17	07/03/96	132.17	2950.23	09/12/96	133.24	2949.16
04/03/96	133.21	2949.19	05/19/96	132.31	2950.09	07/04/96	132.62	2949.78	09/13/96	133.13	2949.27
04/04/96	133.33	2949.07	05/20/96	132.37	2950.03	07/05/96	133.13	2949.27	09/14/96	133.08	2949.32
04/05/96	133.38	2949.02	05/21/96	132.37	2950.03	07/06/96	133.56	2948.84	09/15/96	133.03	2949.37
04/06/96	133.31	2949.09	05/22/96	132.28	2950.12	07/07/96	133.82	2948.58	09/16/96	133.07	2949.33
04/07/96	133.24	2949.16	05/23/96	132.35	2950.05	07/08/96	134.03	2948.37	09/17/96	133.12	2949.28
04/08/96	133.18	2949.22	05/24/96	132.44	2949.96	07/09/96	134.18	2948.22	09/18/96	133.11	2949.29
04/09/96	133.11	2949.29	05/25/96	132.39	2950.01	07/10/96	134.37	2948.03	09/19/96	133.09	2949.31
04/10/96	133.07	2949.33	05/26/96	132.28	2950.12	07/11/96	134.21	2948.19	09/20/96	133.06	2949.34
04/11/96	133.02	2949.38	05/27/96	132.24	2950.16	07/12/96	133.93	2948.47	09/21/96	133.02	2949.38
04/12/96	132.94	2949.46	05/28/96	132.20	2950.20	07/13/96	133.76	2948.64	09/22/96	133.03	2949.37
04/13/96	133.02	2949.38	05/29/96	132.14	2950.26	07/14/96	133.60	2948.80	09/23/96	133.13	2949.27
04/14/96	133.14	2949.26	05/30/96	132.12	2950.28	07/15/96	133.39	2949.01	09/24/96	133.09	2949.31
04/15/96	133.07	2949.33	05/31/96	132.10	2950.30	07/16/96	133.26	2949.14	09/25/96	133.08	2949.32
04/16/96	132.83	2949.57	06/01/96	132.20	2950.20	07/17/96	133.30	2949.10	09/26/96	133.05	2949.35
04/17/96	132.80	2949.60	06/02/96	132.27	2950.13	07/18/96	133.56	2948.84	09/27/96	133.07	2949.33
04/18/96	132.84	2949.56	06/03/96	132.22	2950.18	07/19/96	133.75	2948.65	09/28/96	133.03	2949.37
04/19/96	132.93	2949.47	06/04/96	132.17	2950.23	07/20/96	133.88	2948.52	09/29/96	132.99	2949.41
04/20/96	132.92	2949.48	06/05/96	132.12	2950.28	07/21/96	134.16	2948.24	09/30/96	132.93	2949.47
04/21/96	132.95	2949.45	06/06/96	132.19	2950.21	07/22/96	134.59	2947.81	10/01/96	132.93	2949.47
04/22/96	132.97	2949.43	06/07/96	132.14	2950.26	07/23/96	134.92	2947.48	10/02/96	133.04	2949.36
04/23/96	132.91	2949.49	06/08/96	132.11	2950.29	07/24/96	135.11	2947.29	10/03/96	133.00	2949.40
04/24/96	132.77	2949.63	06/09/96	132.13	2950.27	07/25/96	134.90	2947.50	10/04/96	132.93	2949.47
04/25/96	132.86	2949.54	06/10/96	132.19	2950.21	07/26/96	134.58	2947.82	10/05/96	132.90	2949.50
04/26/96	132.85	2949.55	06/11/96	132.21	2950.19	07/27/96	134.42	2947.98	10/06/96	132.99	2949.41
04/27/96	132.90	2949.50	06/12/96	132.24	2950.16	07/28/96	134.30	2948.10	10/07/96	133.02	2949.38
04/28/96	133.01	2949.39	06/13/96	132.22	2950.18	07/29/96	134.19	2948.21	10/08/96	133.04	2949.36
04/29/96	132.92	2949.48	06/14/96	132.35	2950.05	07/30/96	134.03	2948.37	10/09/96	133.05	2949.35
04/30/96	132.86	2949.54	06/15/96	132.32	2950.08	07/31/96	133.76	2948.64	10/10/96	132.98	2949.42
05/01/96	132.73	2949.67	06/16/96	132.34	2950.06	08/01/96	133.63	2948.77	10/11/96	132.91	2949.49
05/02/96	132.70	2949.70	06/17/96	132.32	2950.08	08/02/96	133.54	2948.86	10/12/96	132.85	2949.55
05/03/96	132.71	2949.69	06/18/96	132.28	2950.12	08/03/96	133.47	2948.93	10/13/96	132.77	2949.63
05/04/96	132.76	2949.64	06/19/96	132.27	2950.13	08/04/96	133.39	2949.01	10/14/96	132.81	2949.59
05/05/96	132.78	2949.62	06/20/96	132.22	2950.18	08/05/96	133.26	2949.14	10/15/96	132.83	2949.57
05/06/96	132.76	2949.64	06/21/96	132.25	2950.15	08/06/96	133.32	2949.08	10/16/96	132.83	2949.57

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
10/17/96	132.88	2949.52	12/02/96	132.40	2950.00	01/17/97	132.55	2949.85	03/04/97	132.10	2950.30
10/18/96	132.66	2949.74	12/03/96	132.41	2949.99	01/18/97	132.48	2949.92	03/05/97	132.19	2950.21
10/19/96	132.57	2949.83	12/04/96	132.42	2949.98	01/19/97	132.38	2950.02	03/06/97	132.16	2950.24
10/20/96	132.70	2949.70	12/05/96	132.18	2950.22	01/20/97	132.21	2950.19	03/07/97	132.10	2950.30
10/21/96	132.86	2949.54	12/06/96	132.23	2950.17	01/21/97	132.15	2950.25	03/08/97	132.17	2950.23
10/22/96	132.76	2949.64	12/07/96	132.37	2950.03	01/22/97	132.12	2950.28	03/09/97	132.19	2950.21
10/23/96	132.69	2949.71	12/08/96	132.33	2950.07	01/23/97	132.12	2950.28	03/10/97	132.16	2950.24
10/24/96	132.47	2949.93	12/09/96	132.26	2950.14	01/24/97	132.18	2950.22	03/11/97	132.15	2950.25
10/25/96	132.47	2949.93	12/10/96	132.13	2950.27	01/25/97	132.19	2950.21	03/12/97	132.16	2950.24
10/26/96	132.75	2949.65	12/11/96	132.23	2950.17	01/26/97	132.20	2950.20	03/13/97	132.33	2950.07
10/27/96	132.89	2949.51	12/12/96	132.34	2950.06	01/27/97	132.45	2949.95	03/14/97	132.36	2950.04
10/28/96	132.71	2949.69	12/13/96	132.46	2949.94	01/28/97	132.42	2949.98	03/15/97	132.16	2950.24
10/29/96	132.64	2949.76	12/14/96	132.66	2949.74	01/29/97	132.49	2949.91	03/16/97	131.97	2950.43
10/30/96	132.75	2949.65	12/15/96	132.67	2949.73	01/30/97	132.32	2950.08	03/17/97	132.10	2950.30
10/31/96	132.77	2949.63	12/16/96	132.71	2949.69	01/31/97	132.24	2950.16	03/18/97	132.26	2950.14
11/01/96	132.86	2949.54	12/17/96	132.86	2949.54	02/01/97	132.24	2950.16	03/19/97	132.29	2950.11
11/02/96	132.80	2949.60	12/18/96	132.79	2949.61	02/02/97	132.28	2950.12	03/20/97	132.20	2950.20
11/03/96	132.64	2949.76	12/19/96	132.65	2949.75	02/03/97	132.38	2950.02	03/21/97	132.25	2950.15
11/04/96	132.62	2949.78	12/20/96	132.37	2950.03	02/04/97	132.45	2949.95	03/22/97	132.23	2950.17
11/05/96	132.62	2949.78	12/21/96	132.25	2950.15	02/05/97	132.49	2949.91	03/23/97	132.14	2950.26
11/06/96	132.60	2949.80	12/22/96	132.28	2950.12	02/06/97	132.48	2949.92	03/24/97	132.22	2950.18
11/07/96	132.67	2949.73	12/23/96	132.40	2950.00	02/07/97	132.47	2949.93	03/25/97	132.22	2950.18
11/08/96	132.71	2949.69	12/24/96	132.52	2949.88	02/08/97	132.45	2949.95	03/26/97	132.06	2950.34
11/09/96	132.72	2949.68	12/25/96	132.47	2949.93	02/09/97	132.44	2949.96	03/27/97	132.01	2950.39
11/10/96	132.66	2949.74	12/26/96	132.32	2950.08	02/10/97	132.43	2949.97	03/28/97	132.01	2950.39
11/11/96	132.67	2949.73	12/27/96	132.15	2950.25	02/11/97	132.34	2950.06	03/29/97	132.08	2950.32
11/12/96	132.67	2949.73	12/28/96	132.23	2950.17	02/12/97	132.15	2950.25	03/30/97	132.01	2950.39
11/13/96	132.64	2949.76	12/29/96	132.21	2950.19	02/13/97	132.25	2950.15	03/31/97	131.91	2950.49
11/14/96	132.52	2949.88	12/30/96	132.21	2950.19	02/14/97	132.27	2950.13	04/01/97	132.02	2950.38
11/15/96	132.48	2949.92	12/31/96	132.16	2950.24	02/15/97	132.27	2950.13	04/02/97	132.15	2950.25
11/16/96	132.47	2949.93	01/01/97	132.08	2950.32	02/16/97	132.24	2950.16	04/03/97	131.92	2950.48
11/17/96	132.42	2949.98	01/02/97	132.14	2950.26	02/17/97	132.09	2950.31	04/04/97	131.91	2950.49
11/18/96	132.34	2950.06	01/03/97	132.17	2950.23	02/18/97	132.19	2950.21	04/05/97	131.98	2950.42
11/19/96	132.29	2950.11	01/04/97	132.37	2950.03	02/19/97	132.09	2950.31	04/06/97	131.96	2950.44
11/20/96	132.37	2950.03	01/05/97	132.49	2949.91	02/20/97	132.19	2950.21	04/07/97	131.95	2950.45
11/21/96	132.40	2950.00	01/06/97	132.56	2949.84	02/21/97	132.32	2950.08	04/08/97	131.97	2950.43
11/22/96	132.37	2950.03	01/07/97	132.48	2949.92	02/22/97	132.37	2950.03	04/09/97	131.97	2950.43
11/23/96	132.55	2949.85	01/08/97	132.49	2949.91	02/23/97	132.45	2949.95	04/10/97	132.03	2950.37
11/24/96	132.61	2949.79	01/09/97	132.46	2949.94	02/24/97	132.52	2949.88	04/11/97	132.06	2950.34
11/25/96	132.64	2949.76	01/10/97	132.39	2950.01	02/25/97	132.37	2950.03	04/12/97	131.97	2950.43
11/26/96	132.74	2949.66	01/11/97	132.44	2949.96	02/26/97	132.13	2950.27	04/13/97	131.79	2950.61
11/27/96	132.65	2949.75	01/12/97	132.54	2949.86	02/27/97	131.89	2950.51	04/14/97	131.75	2950.65
11/28/96	132.43	2949.97	01/13/97	132.51	2949.89	02/28/97	132.00	2950.40	04/15/97	131.85	2950.55
11/29/96	132.47	2949.93	01/14/97	132.47	2949.93	03/01/97	131.99	2950.41	04/16/97	131.80	2950.60
11/30/96	132.48	2949.92	01/15/97	132.52	2949.88	03/02/97	131.92	2950.48	04/17/97	131.77	2950.63
12/01/96	132.32	2950.08	01/16/97	132.58	2949.82	03/03/97	132.01	2950.39	04/18/97	131.69	2950.71

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
04/19/97	131.63	2950.77	06/04/97	130.57	2951.83	07/20/97	130.67	2951.73	09/04/97	130.97	2951.43
04/20/97	131.55	2950.85	06/05/97	130.56	2951.84	07/21/97	130.68	2951.72	09/05/97	130.89	2951.51
04/21/97	131.61	2950.79	06/06/97	130.54	2951.86	07/22/97	130.68	2951.72	09/06/97	130.82	2951.58
04/22/97	131.64	2950.76	06/07/97	130.50	2951.90	07/23/97	130.75	2951.65	09/07/97	130.85	2951.55
04/23/97	131.52	2950.88	06/08/97	130.51	2951.89	07/24/97	130.77	2951.63	09/08/97	130.88	2951.52
04/24/97	131.56	2950.84	06/09/97	130.57	2951.83	07/25/97	130.81	2951.59	09/09/97	130.86	2951.54
04/25/97	131.64	2950.76	06/10/97	130.57	2951.83	07/26/97	130.87	2951.53	09/10/97	130.83	2951.57
04/26/97	131.62	2950.78	06/11/97	130.53	2951.87	07/27/97	130.93	2951.47	09/11/97	130.72	2951.68
04/27/97	131.44	2950.96	06/12/97	130.45	2951.95	07/28/97	131.04	2951.36	09/12/97	130.67	2951.73
04/28/97	131.40	2951.00	06/13/97	130.42	2951.98	07/29/97	131.15	2951.25	09/13/97	130.71	2951.69
04/29/97	131.35	2951.05	06/14/97	130.41	2951.99	07/30/97	131.07	2951.33	09/14/97	130.67	2951.73
04/30/97	131.32	2951.08	06/15/97	130.45	2951.95	07/31/97	130.94	2951.46	09/15/97	130.62	2951.78
05/01/97	131.32	2951.08	06/16/97	130.48	2951.92	08/01/97	130.89	2951.51	09/16/97	130.61	2951.79
05/02/97	131.36	2951.04	06/17/97	130.45	2951.95	08/02/97	130.85	2951.55	09/17/97	130.55	2951.85
05/03/97	131.34	2951.06	06/18/97	130.44	2951.96	08/03/97	130.88	2951.52	09/18/97	130.57	2951.83
05/04/97	131.36	2951.04	06/19/97	130.44	2951.96	08/04/97	131.01	2951.39	09/19/97	130.71	2951.69
05/05/97	131.38	2951.02	06/20/97	130.41	2951.99	08/05/97	131.22	2951.18	09/20/97	130.76	2951.64
05/06/97	131.29	2951.11	06/21/97	130.37	2952.03	08/06/97	131.24	2951.16	09/21/97	130.74	2951.66
05/07/97	131.35	2951.05	06/22/97	130.39	2952.01	08/07/97	131.14	2951.26	09/22/97	130.73	2951.67
05/08/97	131.37	2951.03	06/23/97	130.43	2951.97	08/08/97	130.96	2951.44	09/23/97	130.74	2951.66
05/09/97	131.31	2951.09	06/24/97	130.47	2951.93	08/09/97	130.99	2951.41	09/24/97	130.69	2951.71
05/10/97	131.31	2951.09	06/25/97	130.45	2951.95	08/10/97	130.96	2951.44	09/25/97	130.62	2951.78
05/11/97	131.33	2951.07	06/26/97	130.37	2952.03	08/11/97	131.05	2951.35	09/26/97	130.54	2951.86
05/12/97	131.23	2951.17	06/27/97	130.39	2952.01	08/12/97	131.14	2951.26	09/27/97	130.61	2951.79
05/13/97	131.16	2951.24	06/28/97	130.40	2952.00	08/13/97	131.11	2951.29	09/28/97	130.66	2951.74
05/14/97	131.19	2951.21	06/29/97	130.38	2952.02	08/14/97	130.94	2951.46	09/29/97	130.60	2951.80
05/15/97	131.20	2951.20	06/30/97	130.34	2952.06	08/15/97	130.88	2951.52	09/30/97	130.50	2951.90
05/16/97	131.18	2951.22	07/01/97	130.36	2952.04	08/16/97	131.02	2951.38	10/01/97	130.48	2951.92
05/17/97	131.10	2951.30	07/02/97	130.39	2952.01	08/17/97	131.03	2951.37	10/02/97	130.38	2952.02
05/18/97	131.23	2951.17	07/03/97	130.41	2951.99	08/18/97	131.04	2951.36	10/03/97	130.41	2951.99
05/19/97	131.12	2951.28	07/04/97	130.40	2952.00	08/19/97	131.04	2951.36	10/04/97	130.37	2952.03
05/20/97	131.00	2951.40	07/05/97	130.36	2952.04	08/20/97	131.01	2951.39	10/05/97	130.44	2951.96
05/21/97	131.01	2951.39	07/06/97	130.35	2952.05	08/21/97	131.06	2951.34	10/06/97	130.47	2951.93
05/22/97	131.04	2951.36	07/07/97	130.41	2951.99	08/22/97	131.10	2951.30	10/07/97	130.34	2952.06
05/23/97	131.04	2951.36	07/08/97	130.56	2951.84	08/23/97	131.09	2951.31	10/08/97	130.39	2952.01
05/24/97	130.94	2951.46	07/09/97	130.58	2951.82	08/24/97	131.08	2951.32	10/09/97	130.33	2952.07
05/25/97	130.88	2951.52	07/10/97	130.44	2951.96	08/25/97	131.02	2951.38	10/10/97	130.37	2952.03
05/26/97	130.90	2951.50	07/11/97	130.41	2951.99	08/26/97	130.94	2951.46	10/11/97	130.34	2952.06
05/27/97	130.94	2951.46	07/12/97	130.39	2952.01	08/27/97	130.91	2951.49	10/12/97	130.44	2951.96
05/28/97	130.92	2951.48	07/13/97	130.41	2951.99	08/28/97	130.91	2951.49	10/13/97	130.57	2951.83
05/29/97	130.87	2951.53	07/14/97	130.46	2951.94	08/29/97	130.90	2951.50	10/14/97	130.60	2951.80
05/30/97	130.83	2951.57	07/15/97	130.52	2951.88	08/30/97	130.88	2951.52	10/15/97	130.66	2951.74
05/31/97	130.74	2951.66	07/16/97	130.63	2951.77	08/31/97	130.84	2951.56	10/16/97	130.61	2951.79
06/01/97	130.69	2951.71	07/17/97	130.66	2951.74	09/01/97	130.90	2951.50	10/17/97	130.49	2951.91
06/02/97	130.70	2951.70	07/18/97	130.65	2951.75	09/02/97	130.96	2951.44	10/18/97	130.50	2951.90
06/03/97	130.64	2951.76	07/19/97	130.68	2951.72	09/03/97	130.99	2951.41	10/19/97	130.52	2951.88

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
10/20/97	130.57	2951.83	12/05/97	130.37	2952.03	01/20/98	130.20	2952.20	03/07/98	130.50	2951.90
10/21/97	130.55	2951.85	12/06/97	130.27	2952.13	01/21/98	130.28	2952.12	03/08/98	130.52	2951.88
10/22/97	130.41	2951.99	12/07/97	130.15	2952.25	01/22/98	130.31	2952.09	03/09/98	130.57	2951.83
10/23/97	130.35	2952.05	12/08/97	130.11	2952.29	01/23/98	130.34	2952.06	03/10/98	130.59	2951.81
10/24/97	130.47	2951.93	12/09/97	130.28	2952.12	01/24/98	130.24	2952.16	03/11/98	130.59	2951.81
10/25/97	130.52	2951.88	12/10/97	130.51	2951.89	01/25/98	130.33	2952.07	03/12/98	130.56	2951.84
10/26/97	130.45	2951.95	12/11/97	130.62	2951.78	01/26/98	130.36	2952.04	03/13/98	130.49	2951.91
10/27/97	130.38	2952.02	12/12/97	130.64	2951.76	01/27/98	130.31	2952.09	03/14/98	130.49	2951.91
10/28/97	130.35	2952.05	12/13/97	130.56	2951.84	01/28/98	130.39	2952.01	03/15/98	130.48	2951.92
10/29/97	130.24	2952.16	12/14/97	130.38	2952.02	01/29/98	130.28	2952.12	03/16/98	130.40	2952.00
10/30/97	130.16	2952.24	12/15/97	130.30	2952.10	01/30/98	130.32	2952.08	03/17/98	130.42	2951.98
10/31/97	130.22	2952.18	12/16/97	130.24	2952.16	01/31/98	130.37	2952.03	03/18/98	130.54	2951.86
11/01/97	130.41	2951.99	12/17/97	130.19	2952.21	02/01/98	130.31	2952.09	03/19/98	130.56	2951.84
11/02/97	130.52	2951.88	12/18/97	130.25	2952.15	02/02/98	130.30	2952.10	03/20/98	130.51	2951.89
11/03/97	130.39	2952.01	12/19/97	130.37	2952.03	02/03/98	130.26	2952.14	03/21/98	130.45	2951.95
11/04/97	130.39	2952.01	12/20/97	130.25	2952.15	02/04/98	130.18	2952.22	03/22/98	130.41	2951.99
11/05/97	130.43	2951.97	12/21/97	130.20	2952.20	02/05/98	130.25	2952.15	03/23/98	130.35	2952.05
11/06/97	130.35	2952.05	12/22/97	130.34	2952.06	02/06/98	130.27	2952.13	03/24/98	130.28	2952.12
11/07/97	130.34	2952.06	12/23/97	130.30	2952.10	02/07/98	130.22	2952.18	03/25/98	130.23	2952.17
11/08/97	130.45	2951.95	12/24/97	130.37	2952.03	02/08/98	130.22	2952.18	03/26/98	130.21	2952.19
11/09/97	130.47	2951.93	12/25/97	130.45	2951.95	02/09/98	130.33	2952.07	03/27/98	130.24	2952.16
11/10/97	130.38	2952.02	12/26/97	130.48	2951.92	02/10/98	130.42	2951.98	03/28/98	130.29	2952.11
11/11/97	130.32	2952.08	12/27/97	130.38	2952.02	02/11/98	130.41	2951.99	03/29/98	130.37	2952.03
11/12/97	130.24	2952.16	12/28/97	130.42	2951.98	02/12/98	130.40	2952.00	03/30/98	130.37	2952.03
11/13/97	130.26	2952.14	12/29/97	130.33	2952.07	02/13/98	130.32	2952.08	03/31/98	130.36	2952.04
11/14/97	130.30	2952.10	12/30/97	130.36	2952.04	02/14/98	130.23	2952.17	04/01/98	130.37	2952.03
11/15/97	130.37	2952.03	12/31/97	130.27	2952.13	02/15/98	130.16	2952.24	04/02/98	130.40	2952.00
11/16/97	130.38	2952.02	01/01/98	130.08	2952.32	02/16/98	130.25	2952.15	04/03/98	130.54	2951.86
11/17/97	130.33	2952.07	01/02/98	130.00	2952.40	02/17/98	130.28	2952.12	04/04/98	130.47	2951.93
11/18/97	130.34	2952.06	01/03/98	130.07	2952.33	02/18/98	130.36	2952.04	04/05/98	130.49	2951.91
11/19/97	130.21	2952.19	01/04/98	130.05	2952.35	02/19/98	130.42	2951.98	04/06/98	130.48	2951.92
11/20/97	130.18	2952.22	01/05/98	130.13	2952.27	02/20/98	130.34	2952.06	04/07/98	130.51	2951.89
11/21/97	130.20	2952.20	01/06/98	130.23	2952.17	02/21/98	130.17	2952.23	04/08/98	130.60	2951.80
11/22/97	130.26	2952.14	01/07/98	130.16	2952.24	02/22/98	130.23	2952.17	04/09/98	130.62	2951.78
11/23/97	130.19	2952.21	01/08/98	130.17	2952.23	02/23/98	130.34	2952.06	04/10/98	130.57	2951.83
11/24/97	130.16	2952.24	01/09/98	130.25	2952.15	02/24/98	130.30	2952.10	04/11/98	130.42	2951.98
11/25/97	130.22	2952.18	01/10/98	130.23	2952.17	02/25/98	130.33	2952.07	04/12/98	130.40	2952.00
11/26/97	130.14	2952.26	01/11/98	130.29	2952.11	02/26/98	130.39	2952.01	04/13/98	130.48	2951.92
11/27/97	130.09	2952.31	01/12/98	130.34	2952.06	02/27/98	130.48	2951.92	04/14/98	130.51	2951.89
11/28/97	130.18	2952.22	01/13/98	130.25	2952.15	02/28/98	130.58	2951.82	04/15/98	130.55	2951.85
11/29/97	130.21	2952.19	01/14/98	130.25	2952.15	03/01/98	130.60	2951.80	04/16/98	130.59	2951.81
11/30/97	130.18	2952.22	01/15/98	130.17	2952.23	03/02/98	130.50	2951.90	04/17/98	130.67	2951.73
12/01/97	130.29	2952.11	01/16/98	130.21	2952.19	03/03/98	130.34	2952.06	04/18/98	130.71	2951.69
12/02/97	130.34	2952.06	01/17/98	130.19	2952.21	03/04/98	130.39	2952.01	04/19/98	130.70	2951.70
12/03/97	130.38	2952.02	01/18/98	130.28	2952.12	03/05/98	130.44	2951.96	04/20/98	130.77	2951.63
12/04/97	130.38	2952.02	01/19/98	130.12	2952.28	03/06/98	130.44	2951.96	04/21/98	130.77	2951.63

Groundwater Hydrograph

Well Identification

FVGSB1 (continued)

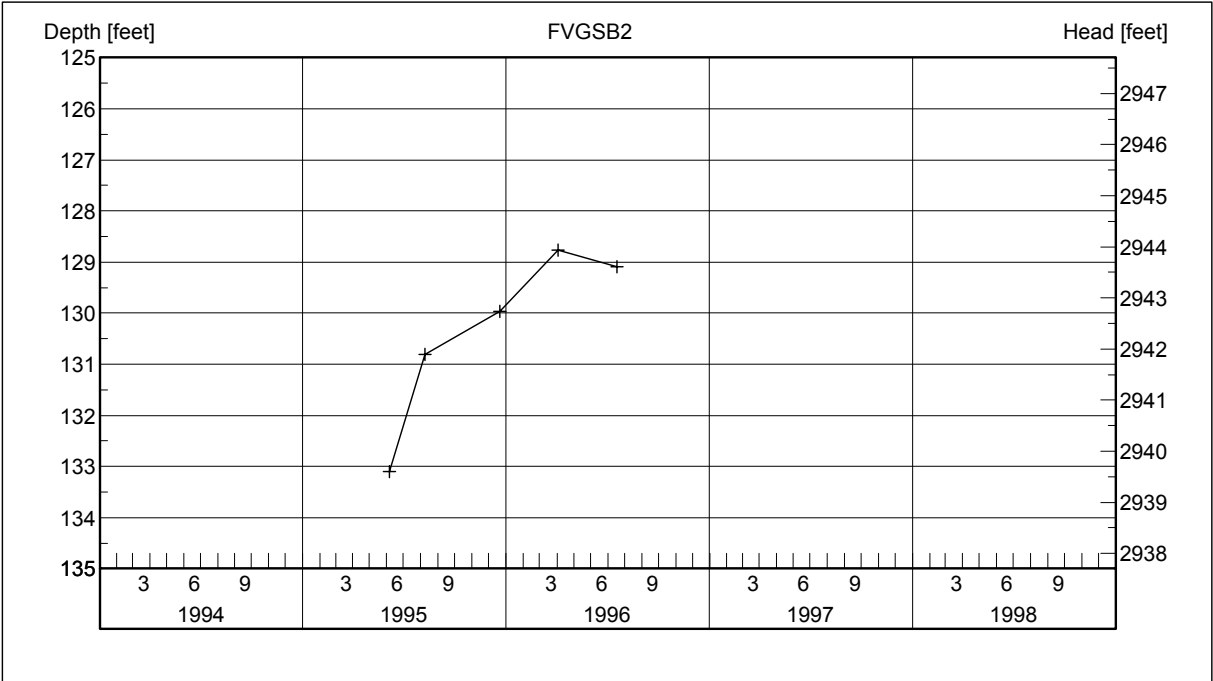
Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
04/22/98	130.69	2951.71	06/07/98	130.72	2951.68						
04/23/98	130.53	2951.87	06/08/98	130.72	2951.68						
04/24/98	130.45	2951.95	06/09/98	130.69	2951.71						
04/25/98	130.55	2951.85	06/10/98	130.63	2951.77						
04/26/98	130.70	2951.70	06/11/98	130.64	2951.76						
04/27/98	130.77	2951.63	06/12/98	130.64	2951.76						
04/28/98	130.76	2951.64	06/13/98	130.62	2951.78						
04/29/98	130.70	2951.70	06/14/98	130.64	2951.76						
04/30/98	130.71	2951.69	06/15/98	130.48	2951.92						
05/01/98	130.69	2951.71	06/16/98	130.42	2951.98						
05/02/98	130.64	2951.76	06/17/98	130.48	2951.92						
05/03/98	130.67	2951.73	06/18/98	130.45	2951.95						
05/04/98	130.77	2951.63	06/19/98	130.43	2951.97						
05/05/98	130.74	2951.66	06/20/98	130.49	2951.91						
05/06/98	130.80	2951.60	06/21/98	130.49	2951.91						
05/07/98	130.84	2951.56	06/22/98	130.43	2951.97						
05/08/98	130.84	2951.56	06/23/98	130.37	2952.03						
05/09/98	130.90	2951.50	06/24/98	130.28	2952.12						
05/10/98	131.00	2951.40	06/25/98	130.27	2952.13						
05/11/98	130.99	2951.41	06/26/98	130.29	2952.11						
05/12/98	130.93	2951.47	06/27/98	130.33	2952.07						
05/13/98	131.09	2951.31	06/28/98	130.36	2952.04						
05/14/98	131.32	2951.08	06/29/98	130.40	2952.00						
05/15/98	131.40	2951.00	06/30/98	130.41	2951.99						
05/16/98	131.35	2951.05	07/01/98	130.41	2951.99						
05/17/98	131.21	2951.19	07/02/98	130.42	2951.98						
05/18/98	131.24	2951.16	07/03/98	130.42	2951.98						
05/19/98	131.21	2951.19	07/04/98	130.40	2952.00						
05/20/98	131.10	2951.30	07/05/98	130.40	2952.00						
05/21/98	131.03	2951.37	07/06/98	130.43	2951.97						
05/22/98	130.94	2951.46	07/07/98	130.44	2951.96						
05/23/98	130.93	2951.47	07/08/98	130.46	2951.94						
05/24/98	130.95	2951.45	07/09/98	130.42	2951.98						
05/25/98	130.86	2951.54	07/10/98	130.41	2951.99						
05/26/98	130.75	2951.65	07/11/98	130.40	2952.00						
05/27/98	130.75	2951.65	07/12/98	130.42	2951.98						
05/28/98	130.85	2951.55	07/13/98	130.45	2951.95						
05/29/98	130.79	2951.61	07/14/98	130.48	2951.92						
05/30/98	130.82	2951.58	07/15/98	130.59	2951.81						
05/31/98	130.85	2951.55	07/16/98	130.70	2951.70						
06/01/98	130.71	2951.69	07/17/98	130.77	2951.63						
06/02/98	130.76	2951.64	07/18/98	130.78	2951.62						
06/03/98	130.72	2951.68	07/19/98	130.85	2951.55						
06/04/98	130.72	2951.68	07/20/98	130.99	2951.41						
06/05/98	130.76	2951.64	07/21/98	131.03	2951.37						
06/06/98	130.76	2951.64									

Groundwater Hydrograph		
Well Identification FVGSB2	MBMG Site # M:148191	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well B2

Well Name or Well Owner
MT DNRC Flathead Valley Groundwater Study well B2

Well Depth below m.p. (ft)
399.70

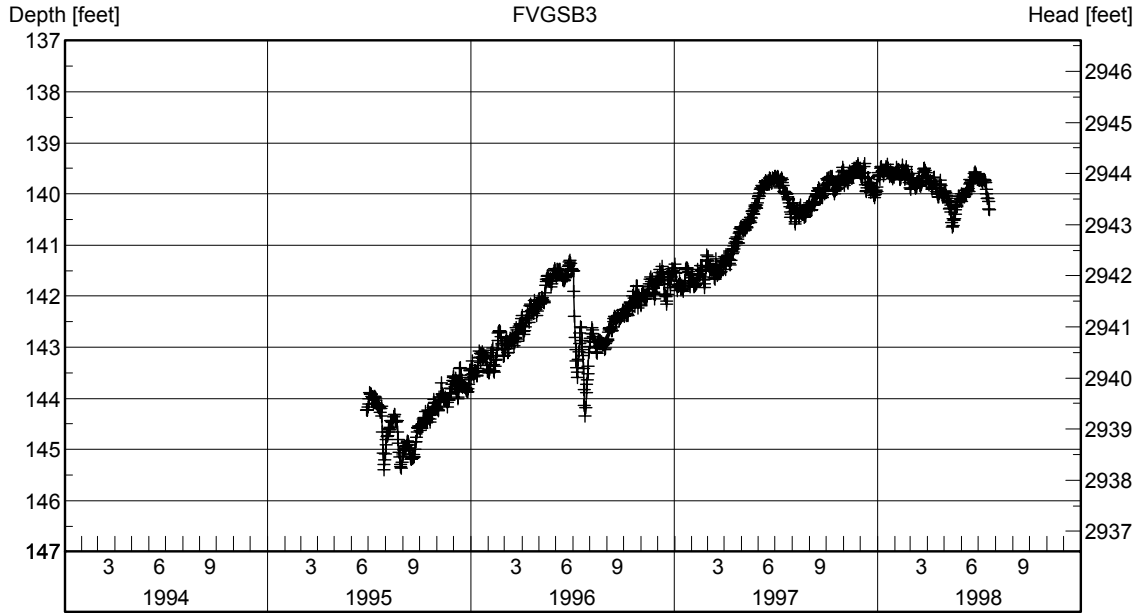


Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/06/95	133.10	2939.60									
08/08/95	130.81	2941.89									
12/21/95	129.97	2942.73									
04/03/96	128.77	2943.93									
07/18/96	129.09	2943.61									

Groundwater Hydrograph

Well Identification FVGSB3	MBMG Site # M:148192	Well Name or Well Owner MT DNRC Flathead Valley Groundwater Study well B3	
Location 30N 21W 21 CACA	Ground Surface Elev. (ft) 3080.00	Measuring Point Elev. (ft) 3083.10	Well Depth below m.p. (ft) 560.10



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
06/27/95	144.22	2938.88	07/18/95	144.14	2938.96	08/08/95	144.61	2938.49	08/29/95	145.37	2937.73
06/28/95	144.22	2938.88	07/19/95	144.17	2938.93	08/09/95	144.56	2938.54	08/30/95	145.25	2937.85
06/29/95	144.23	2938.87	07/20/95	144.18	2938.92	08/10/95	144.44	2938.66	08/31/95	145.13	2937.97
06/30/95	144.17	2938.93	07/21/95	144.20	2938.90	08/11/95	144.44	2938.66	09/01/95	145.08	2938.02
07/01/95	144.11	2938.99	07/22/95	144.27	2938.83	08/12/95	144.46	2938.64	09/02/95	145.01	2938.09
07/02/95	144.00	2939.10	07/23/95	144.19	2938.91	08/13/95	144.47	2938.63	09/03/95	144.99	2938.11
07/03/95	143.89	2939.21	07/24/95	144.15	2938.95	08/14/95	144.44	2938.66	09/04/95	144.94	2938.16
07/04/95	143.91	2939.19	07/25/95	144.35	2938.75	08/15/95	144.36	2938.74	09/05/95	144.96	2938.14
07/05/95	143.91	2939.19	07/26/95	144.66	2938.44	08/16/95	144.31	2938.79	09/06/95	145.01	2938.09
07/06/95	143.92	2939.18	07/27/95	145.07	2938.03	08/17/95	144.32	2938.78	09/07/95	144.92	2938.18
07/07/95	143.96	2939.14	07/28/95	145.40	2937.70	08/18/95	144.44	2938.66	09/08/95	144.84	2938.26
07/08/95	143.98	2939.12	07/29/95	145.29	2937.81	08/19/95	144.47	2938.63	09/09/95	144.86	2938.24
07/09/95	143.99	2939.11	07/30/95	145.20	2937.90	08/20/95	144.44	2938.66	09/10/95	144.85	2938.25
07/10/95	144.01	2939.09	07/31/95	145.09	2938.01	08/21/95	144.44	2938.66	09/11/95	144.90	2938.20
07/11/95	143.96	2939.14	08/01/95	144.91	2938.19	08/22/95	144.66	2938.44	09/12/95	144.96	2938.14
07/12/95	143.96	2939.14	08/02/95	144.81	2938.29	08/23/95	144.81	2938.29	09/13/95	145.03	2938.07
07/13/95	143.99	2939.11	08/03/95	144.75	2938.35	08/24/95	144.88	2938.22	09/14/95	145.15	2937.95
07/14/95	144.04	2939.06	08/04/95	144.73	2938.37	08/25/95	145.06	2938.04	09/15/95	145.19	2937.91
07/15/95	144.09	2939.01	08/05/95	144.65	2938.45	08/26/95	145.15	2937.95	09/16/95	145.19	2937.91
07/16/95	144.13	2938.97	08/06/95	144.60	2938.50	08/27/95	145.29	2937.81	09/17/95	145.18	2937.92
07/17/95	144.16	2938.94	08/07/95	144.61	2938.49	08/28/95	145.33	2937.77	09/18/95	145.18	2937.92

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/19/95	145.10	2938.00	11/04/95	144.22	2938.88	12/20/95	143.76	2939.34	02/04/96	143.43	2939.67
09/20/95	145.15	2937.95	11/05/95	143.98	2939.12	12/21/95	143.78	2939.32	02/05/96	143.36	2939.74
09/21/95	145.15	2937.95	11/06/95	144.04	2939.06	12/22/95	143.78	2939.32	02/06/96	143.19	2939.91
09/22/95	145.00	2938.10	11/07/95	144.05	2939.05	12/23/95	143.81	2939.29	02/07/96	143.10	2940.00
09/23/95	144.85	2938.25	11/08/95	143.97	2939.13	12/24/95	143.84	2939.26	02/08/96	143.06	2940.04
09/24/95	144.85	2938.25	11/09/95	143.70	2939.40	12/25/95	143.87	2939.23	02/09/96	143.02	2940.08
09/25/95	144.76	2938.34	11/10/95	143.91	2939.19	12/26/95	143.87	2939.23	02/10/96	143.34	2939.76
09/26/95	144.66	2938.44	11/11/95	143.91	2939.19	12/27/95	143.81	2939.29	02/11/96	143.46	2939.64
09/27/95	144.58	2938.52	11/12/95	143.95	2939.15	12/28/95	143.73	2939.37	02/12/96	143.48	2939.62
09/28/95	144.56	2938.54	11/13/95	144.02	2939.08	12/29/95	143.59	2939.51	02/13/96	143.37	2939.73
09/29/95	144.54	2938.56	11/14/95	144.00	2939.10	12/30/95	143.44	2939.66	02/14/96	143.23	2939.87
09/30/95	144.57	2938.53	11/15/95	143.98	2939.12	12/31/95	143.45	2939.65	02/15/96	143.25	2939.85
10/01/95	144.58	2938.52	11/16/95	144.03	2939.07	01/01/96	143.62	2939.48	02/16/96	143.16	2939.94
10/02/95	144.63	2938.47	11/17/95	144.04	2939.06	01/02/96	143.53	2939.57	02/17/96	143.05	2940.05
10/03/95	144.53	2938.57	11/18/95	144.01	2939.09	01/03/96	143.26	2939.84	02/18/96	142.87	2940.23
10/04/95	144.51	2938.59	11/19/95	144.08	2939.02	01/04/96	143.41	2939.69	02/19/96	142.72	2940.38
10/05/95	144.58	2938.52	11/20/95	144.16	2938.94	01/05/96	143.51	2939.59	02/20/96	142.69	2940.41
10/06/95	144.49	2938.61	11/21/95	144.04	2939.06	01/06/96	143.57	2939.53	02/21/96	142.67	2940.43
10/07/95	144.41	2938.69	11/22/95	144.03	2939.07	01/07/96	143.49	2939.61	02/22/96	142.71	2940.39
10/08/95	144.44	2938.66	11/23/95	144.01	2939.09	01/08/96	143.46	2939.64	02/23/96	142.71	2940.39
10/09/95	144.38	2938.72	11/24/95	143.92	2939.18	01/09/96	143.46	2939.64	02/24/96	142.79	2940.31
10/10/95	144.38	2938.72	11/25/95	143.80	2939.30	01/10/96	143.48	2939.62	02/25/96	142.92	2940.18
10/11/95	144.25	2938.85	11/26/95	143.81	2939.29	01/11/96	143.56	2939.54	02/26/96	142.95	2940.15
10/12/95	144.42	2938.68	11/27/95	143.88	2939.22	01/12/96	143.54	2939.56	02/27/96	143.04	2940.06
10/13/95	144.48	2938.62	11/28/95	143.73	2939.37	01/13/96	143.41	2939.69	02/28/96	143.17	2939.93
10/14/95	144.46	2938.64	11/29/95	143.65	2939.45	01/14/96	143.35	2939.75	02/29/96	143.16	2939.94
10/15/95	144.39	2938.71	11/30/95	143.59	2939.51	01/15/96	143.21	2939.89	03/01/96	143.16	2939.94
10/16/95	144.23	2938.87	12/01/95	143.56	2939.54	01/16/96	143.07	2940.03	03/02/96	143.03	2940.07
10/17/95	144.25	2938.85	12/02/95	143.66	2939.44	01/17/96	143.19	2939.91	03/03/96	142.90	2940.20
10/18/95	144.33	2938.77	12/03/95	143.77	2939.33	01/18/96	143.30	2939.80	03/04/96	142.84	2940.26
10/19/95	144.46	2938.64	12/04/95	143.61	2939.49	01/19/96	143.11	2939.99	03/05/96	142.81	2940.29
10/20/95	144.40	2938.70	12/05/95	143.81	2939.29	01/20/96	143.13	2939.97	03/06/96	142.97	2940.13
10/21/95	144.28	2938.82	12/06/95	143.85	2939.25	01/21/96	143.08	2940.02	03/07/96	143.10	2940.00
10/22/95	144.31	2938.79	12/07/95	143.81	2939.29	01/22/96	143.22	2939.88	03/08/96	143.10	2940.00
10/23/95	144.31	2938.79	12/08/95	143.97	2939.13	01/23/96	143.19	2939.91	03/09/96	143.03	2940.07
10/24/95	144.22	2938.88	12/09/95	144.00	2939.10	01/24/96	143.13	2939.97	03/10/96	142.92	2940.18
10/25/95	144.18	2938.92	12/10/95	143.87	2939.23	01/25/96	143.17	2939.93	03/11/96	142.86	2940.24
10/26/95	144.02	2939.08	12/11/95	143.70	2939.40	01/26/96	143.22	2939.88	03/12/96	142.82	2940.28
10/27/95	144.08	2939.02	12/12/95	143.42	2939.68	01/27/96	143.17	2939.93	03/13/96	142.83	2940.27
10/28/95	144.10	2939.00	12/13/95	143.40	2939.70	01/28/96	143.17	2939.93	03/14/96	142.89	2940.21
10/29/95	144.16	2938.94	12/14/95	143.55	2939.55	01/29/96	143.29	2939.81	03/15/96	142.78	2940.32
10/30/95	144.20	2938.90	12/15/95	143.64	2939.46	01/30/96	143.47	2939.63	03/16/96	142.81	2940.29
10/31/95	144.15	2938.95	12/16/95	143.70	2939.40	01/31/96	143.47	2939.63	03/17/96	142.84	2940.26
11/01/95	144.17	2938.93	12/17/95	143.78	2939.32	02/01/96	143.44	2939.66	03/18/96	142.97	2940.13
11/02/95	144.21	2938.89	12/18/95	143.75	2939.35	02/02/96	143.49	2939.61	03/19/96	142.89	2940.21
11/03/95	144.24	2938.86	12/19/95	143.74	2939.36	02/03/96	143.50	2939.60	03/20/96	142.82	2940.28

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/21/96	142.80	2940.30	05/06/96	142.12	2940.98	06/21/96	141.61	2941.49	08/06/96	142.66	2940.44
03/22/96	142.62	2940.48	05/07/96	142.02	2941.08	06/22/96	141.57	2941.53	08/07/96	142.73	2940.37
03/23/96	142.66	2940.44	05/08/96	142.03	2941.07	06/23/96	141.50	2941.60	08/08/96	142.79	2940.31
03/24/96	142.84	2940.26	05/09/96	142.07	2941.03	06/24/96	141.42	2941.68	08/09/96	142.88	2940.22
03/25/96	142.88	2940.22	05/10/96	142.11	2940.99	06/25/96	141.39	2941.71	08/10/96	142.90	2940.20
03/26/96	142.73	2940.37	05/11/96	142.13	2940.97	06/26/96	141.33	2941.77	08/11/96	142.89	2940.21
03/27/96	142.71	2940.39	05/12/96	142.10	2941.00	06/27/96	141.29	2941.81	08/12/96	142.99	2940.11
03/28/96	142.59	2940.51	05/13/96	141.94	2941.16	06/28/96	141.36	2941.74	08/13/96	143.09	2940.01
03/29/96	142.54	2940.56	05/14/96	141.78	2941.32	06/29/96	141.46	2941.64	08/14/96	143.12	2939.98
03/30/96	142.56	2940.54	05/15/96	141.71	2941.39	06/30/96	141.49	2941.61	08/15/96	143.02	2940.08
03/31/96	142.57	2940.53	05/16/96	141.66	2941.44	07/01/96	141.48	2941.62	08/16/96	142.90	2940.20
04/01/96	142.43	2940.67	05/17/96	141.61	2941.49	07/02/96	141.50	2941.60	08/17/96	142.85	2940.25
04/02/96	142.38	2940.72	05/18/96	141.60	2941.50	07/03/96	141.51	2941.59	08/18/96	142.87	2940.23
04/03/96	142.59	2940.51	05/19/96	141.66	2941.44	07/04/96	141.91	2941.19	08/19/96	142.90	2940.20
04/04/96	142.69	2940.41	05/20/96	141.70	2941.40	07/05/96	142.39	2940.71	08/20/96	142.87	2940.23
04/05/96	142.74	2940.36	05/21/96	141.69	2941.41	07/06/96	142.80	2940.30	08/21/96	142.91	2940.19
04/06/96	142.67	2940.43	05/22/96	141.65	2941.45	07/07/96	143.05	2940.05	08/22/96	142.89	2940.21
04/07/96	142.60	2940.50	05/23/96	141.71	2941.39	07/08/96	143.26	2939.84	08/23/96	142.90	2940.20
04/08/96	142.53	2940.57	05/24/96	141.81	2941.29	07/09/96	143.40	2939.70	08/24/96	142.93	2940.17
04/09/96	142.47	2940.63	05/25/96	141.76	2941.34	07/10/96	143.59	2939.51	08/25/96	142.95	2940.15
04/10/96	142.42	2940.68	05/26/96	141.65	2941.45	07/11/96	143.49	2939.61	08/26/96	142.94	2940.16
04/11/96	142.37	2940.73	05/27/96	141.61	2941.49	07/12/96	143.24	2939.86	08/27/96	142.93	2940.17
04/12/96	142.30	2940.80	05/28/96	141.56	2941.54	07/13/96	143.08	2940.02	08/28/96	143.05	2940.05
04/13/96	142.38	2940.72	05/29/96	141.51	2941.59	07/14/96	142.92	2940.18	08/29/96	143.02	2940.08
04/14/96	142.51	2940.59	05/30/96	141.49	2941.61	07/15/96	142.72	2940.38	08/30/96	142.93	2940.17
04/15/96	142.43	2940.67	05/31/96	141.46	2941.64	07/16/96	142.60	2940.50	08/31/96	142.89	2940.21
04/16/96	142.19	2940.91	06/01/96	141.57	2941.53	07/17/96	142.62	2940.48	09/01/96	142.86	2940.24
04/17/96	142.16	2940.94	06/02/96	141.64	2941.46	07/18/96	142.87	2940.23	09/02/96	142.87	2940.23
04/18/96	142.19	2940.91	06/03/96	141.59	2941.51	07/19/96	143.04	2940.06	09/03/96	142.84	2940.26
04/19/96	142.29	2940.81	06/04/96	141.47	2941.63	07/20/96	143.16	2939.94	09/04/96	142.71	2940.39
04/20/96	142.28	2940.82	06/05/96	141.48	2941.62	07/21/96	143.41	2939.69	09/05/96	142.63	2940.47
04/21/96	142.31	2940.79	06/06/96	141.55	2941.55	07/22/96	143.83	2939.27	09/06/96	142.66	2940.44
04/22/96	142.33	2940.77	06/07/96	141.51	2941.59	07/23/96	144.14	2938.96	09/07/96	142.62	2940.48
04/23/96	142.25	2940.85	06/08/96	141.47	2941.63	07/24/96	144.35	2938.75	09/08/96	142.61	2940.49
04/24/96	142.08	2941.02	06/09/96	141.48	2941.62	07/25/96	144.18	2938.92	09/09/96	142.65	2940.45
04/25/96	142.21	2940.89	06/10/96	141.56	2941.54	07/26/96	143.89	2939.21	09/10/96	142.67	2940.43
04/26/96	142.21	2940.89	06/11/96	141.57	2941.53	07/27/96	143.72	2939.38	09/11/96	142.68	2940.42
04/27/96	142.26	2940.84	06/12/96	141.60	2941.50	07/28/96	143.63	2939.47	09/12/96	142.60	2940.50
04/28/96	142.38	2940.72	06/13/96	141.59	2941.51	07/29/96	143.52	2939.58	09/13/96	142.49	2940.61
04/29/96	142.29	2940.81	06/14/96	141.68	2941.42	07/30/96	143.37	2939.73	09/14/96	142.44	2940.66
04/30/96	142.22	2940.88	06/15/96	141.67	2941.43	07/31/96	143.10	2940.00	09/15/96	142.39	2940.71
05/01/96	142.09	2941.01	06/16/96	141.69	2941.41	08/01/96	142.98	2940.12	09/16/96	142.41	2940.69
05/02/96	142.07	2941.03	06/17/96	141.68	2941.42	08/02/96	142.89	2940.21	09/17/96	142.47	2940.63
05/03/96	142.08	2941.02	06/18/96	141.64	2941.46	08/03/96	142.82	2940.28	09/18/96	142.47	2940.63
05/04/96	142.13	2940.97	06/19/96	141.63	2941.47	08/04/96	142.73	2940.37	09/19/96	142.44	2940.66
05/05/96	142.16	2940.94	06/20/96	141.58	2941.52	08/05/96	142.61	2940.49	09/20/96	142.41	2940.69

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/21/96	142.37	2940.73	11/06/96	141.94	2941.16	12/22/96	141.58	2941.52	02/06/97	141.80	2941.30
09/22/96	142.37	2940.73	11/07/96	142.00	2941.10	12/23/96	141.70	2941.40	02/07/97	141.78	2941.32
09/23/96	142.48	2940.62	11/08/96	142.05	2941.05	12/24/96	141.83	2941.27	02/08/97	141.76	2941.34
09/24/96	142.44	2940.66	11/09/96	142.05	2941.05	12/25/96	141.77	2941.33	02/09/97	141.75	2941.35
09/25/96	142.43	2940.67	11/10/96	142.00	2941.10	12/26/96	141.63	2941.47	02/10/97	141.74	2941.36
09/26/96	142.40	2940.70	11/11/96	142.01	2941.09	12/27/96	141.46	2941.64	02/11/97	141.66	2941.44
09/27/96	142.41	2940.69	11/12/96	142.01	2941.09	12/28/96	141.53	2941.57	02/12/97	141.47	2941.63
09/28/96	142.37	2940.73	11/13/96	141.98	2941.12	12/29/96	141.50	2941.60	02/13/97	141.56	2941.54
09/29/96	142.34	2940.76	11/14/96	141.86	2941.24	12/30/96	141.51	2941.59	02/14/97	141.59	2941.51
09/30/96	142.28	2940.82	11/15/96	141.81	2941.29	12/31/96	141.46	2941.64	02/15/97	141.59	2941.51
10/01/96	142.28	2940.82	11/16/96	141.80	2941.30	01/01/97	141.37	2941.73	02/16/97	141.56	2941.54
10/02/96	142.39	2940.71	11/17/96	141.75	2941.35	01/02/97	141.44	2941.66	02/17/97	141.40	2941.70
10/03/96	142.36	2940.74	11/18/96	141.67	2941.43	01/03/97	141.55	2941.55	02/18/97	141.51	2941.59
10/04/96	142.28	2940.82	11/19/96	141.62	2941.48	01/04/97	141.69	2941.41	02/19/97	141.40	2941.70
10/05/96	142.24	2940.86	11/20/96	141.71	2941.39	01/05/97	141.81	2941.29	02/20/97	141.50	2941.60
10/06/96	142.34	2940.76	11/21/96	141.75	2941.35	01/06/97	141.89	2941.21	02/21/97	141.63	2941.47
10/07/96	142.37	2940.73	11/22/96	141.67	2941.43	01/07/97	141.80	2941.30	02/22/97	141.68	2941.42
10/08/96	142.36	2940.74	11/23/96	141.84	2941.26	01/08/97	141.80	2941.30	02/23/97	141.75	2941.35
10/09/96	142.37	2940.73	11/24/96	141.92	2941.18	01/09/97	141.77	2941.33	02/24/97	141.83	2941.27
10/10/96	142.29	2940.81	11/25/96	141.95	2941.15	01/10/97	141.70	2941.40	02/25/97	141.67	2941.43
10/11/96	142.22	2940.88	11/26/96	142.05	2941.05	01/11/97	141.75	2941.35	02/26/97	141.44	2941.66
10/12/96	142.18	2940.92	11/27/96	141.96	2941.14	01/12/97	141.87	2941.23	02/27/97	141.19	2941.91
10/13/96	142.11	2940.99	11/28/96	141.73	2941.37	01/13/97	141.84	2941.26	02/28/97	141.30	2941.80
10/14/96	142.13	2940.97	11/29/96	141.77	2941.33	01/14/97	141.78	2941.32	03/01/97	141.30	2941.80
10/15/96	142.14	2940.96	11/30/96	141.78	2941.32	01/15/97	141.84	2941.26	03/02/97	141.22	2941.88
10/16/96	142.15	2940.95	12/01/96	141.61	2941.49	01/16/97	141.90	2941.20	03/03/97	141.31	2941.79
10/17/96	142.21	2940.89	12/02/96	141.68	2941.42	01/17/97	141.87	2941.23	03/04/97	141.42	2941.68
10/18/96	141.99	2941.11	12/03/96	141.70	2941.40	01/18/97	141.80	2941.30	03/05/97	141.51	2941.59
10/19/96	141.90	2941.20	12/04/96	141.72	2941.38	01/19/97	141.70	2941.40	03/06/97	141.48	2941.62
10/20/96	142.04	2941.06	12/05/96	141.47	2941.63	01/20/97	141.53	2941.57	03/07/97	141.42	2941.68
10/21/96	142.20	2940.90	12/06/96	141.53	2941.57	01/21/97	141.47	2941.63	03/08/97	141.48	2941.62
10/22/96	142.10	2941.00	12/07/96	141.66	2941.44	01/22/97	141.44	2941.66	03/09/97	141.51	2941.59
10/23/96	142.04	2941.06	12/08/96	141.63	2941.47	01/23/97	141.44	2941.66	03/10/97	141.47	2941.63
10/24/96	141.80	2941.30	12/09/96	141.56	2941.54	01/24/97	141.47	2941.63	03/11/97	141.47	2941.63
10/25/96	141.80	2941.30	12/10/96	141.42	2941.68	01/25/97	141.48	2941.62	03/12/97	141.47	2941.63
10/26/96	142.09	2941.01	12/11/96	141.52	2941.58	01/26/97	141.52	2941.58	03/13/97	141.64	2941.46
10/27/96	142.23	2940.87	12/12/96	141.63	2941.47	01/27/97	141.76	2941.34	03/14/97	141.67	2941.43
10/28/96	142.05	2941.05	12/13/96	141.75	2941.35	01/28/97	141.73	2941.37	03/15/97	141.48	2941.62
10/29/96	141.98	2941.12	12/14/96	141.96	2941.14	01/29/97	141.81	2941.29	03/16/97	141.27	2941.83
10/30/96	142.10	2941.00	12/15/96	141.98	2941.12	01/30/97	141.64	2941.46	03/17/97	141.40	2941.70
10/31/96	142.11	2940.99	12/16/96	142.01	2941.09	01/31/97	141.56	2941.54	03/18/97	141.56	2941.54
11/01/96	142.19	2940.91	12/17/96	142.15	2940.95	02/01/97	141.56	2941.54	03/19/97	141.60	2941.50
11/02/96	142.15	2940.95	12/18/96	142.09	2941.01	02/02/97	141.60	2941.50	03/20/97	141.51	2941.59
11/03/96	141.98	2941.12	12/19/96	141.96	2941.14	02/03/97	141.69	2941.41	03/21/97	141.56	2941.54
11/04/96	141.95	2941.15	12/20/96	141.66	2941.44	02/04/97	141.76	2941.34	03/22/97	141.54	2941.56
11/05/96	141.95	2941.15	12/21/96	141.55	2941.55	02/05/97	141.81	2941.29	03/23/97	141.45	2941.65

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/24/97	141.53	2941.57	05/09/97	140.65	2942.45	06/24/97	139.79	2943.31	08/09/97	140.33	2942.77
03/25/97	141.52	2941.58	05/10/97	140.64	2942.46	06/25/97	139.77	2943.33	08/10/97	140.31	2942.79
03/26/97	141.37	2941.73	05/11/97	140.66	2942.44	06/26/97	139.69	2943.41	08/11/97	140.38	2942.72
03/27/97	141.31	2941.79	05/12/97	140.57	2942.53	06/27/97	139.70	2943.40	08/12/97	140.45	2942.65
03/28/97	141.31	2941.79	05/13/97	140.50	2942.60	06/28/97	139.72	2943.38	08/13/97	140.45	2942.65
03/29/97	141.39	2941.71	05/14/97	140.54	2942.56	06/29/97	139.70	2943.40	08/14/97	140.27	2942.83
03/30/97	141.33	2941.77	05/15/97	140.56	2942.54	06/30/97	139.65	2943.45	08/15/97	140.22	2942.88
03/31/97	141.22	2941.88	05/16/97	140.53	2942.57	07/01/97	139.66	2943.44	08/16/97	140.37	2942.73
04/01/97	141.33	2941.77	05/17/97	140.45	2942.65	07/02/97	139.69	2943.41	08/17/97	140.37	2942.73
04/02/97	141.47	2941.63	05/18/97	140.56	2942.54	07/03/97	139.72	2943.38	08/18/97	140.40	2942.70
04/03/97	141.23	2941.87	05/19/97	140.47	2942.63	07/04/97	139.71	2943.39	08/19/97	140.39	2942.71
04/04/97	141.22	2941.88	05/20/97	140.34	2942.76	07/05/97	139.67	2943.43	08/20/97	140.34	2942.76
04/05/97	141.30	2941.80	05/21/97	140.33	2942.77	07/06/97	139.65	2943.45	08/21/97	140.40	2942.70
04/06/97	141.28	2941.82	05/22/97	140.38	2942.72	07/07/97	139.71	2943.39	08/22/97	140.45	2942.65
04/07/97	141.27	2941.83	05/23/97	140.39	2942.71	07/08/97	139.85	2943.25	08/23/97	140.44	2942.66
04/08/97	141.29	2941.81	05/24/97	140.29	2942.81	07/09/97	139.88	2943.22	08/24/97	140.42	2942.68
04/09/97	141.28	2941.82	05/25/97	140.22	2942.88	07/10/97	139.74	2943.36	08/25/97	140.35	2942.75
04/10/97	141.35	2941.75	05/26/97	140.24	2942.86	07/11/97	139.71	2943.39	08/26/97	140.27	2942.83
04/11/97	141.38	2941.72	05/27/97	140.27	2942.83	07/12/97	139.69	2943.41	08/27/97	140.25	2942.85
04/12/97	141.29	2941.81	05/28/97	140.27	2942.83	07/13/97	139.72	2943.38	08/28/97	140.25	2942.85
04/13/97	141.10	2942.00	05/29/97	140.22	2942.88	07/14/97	139.77	2943.33	08/29/97	140.24	2942.86
04/14/97	141.07	2942.03	05/30/97	140.17	2942.93	07/15/97	139.84	2943.26	08/30/97	140.22	2942.88
04/15/97	141.17	2941.93	05/31/97	140.08	2943.02	07/16/97	139.95	2943.15	08/31/97	140.17	2942.93
04/16/97	141.13	2941.97	06/01/97	140.04	2943.06	07/17/97	139.97	2943.13	09/01/97	140.24	2942.86
04/17/97	141.08	2942.02	06/02/97	140.04	2943.06	07/18/97	139.95	2943.15	09/02/97	140.30	2942.80
04/18/97	141.01	2942.09	06/03/97	139.98	2943.12	07/19/97	139.98	2943.12	09/03/97	140.32	2942.78
04/19/97	140.95	2942.15	06/04/97	139.91	2943.19	07/20/97	139.98	2943.12	09/04/97	140.30	2942.80
04/20/97	140.87	2942.23	06/05/97	139.90	2943.20	07/21/97	139.99	2943.11	09/05/97	140.22	2942.88
04/21/97	140.93	2942.17	06/06/97	139.88	2943.22	07/22/97	139.99	2943.11	09/06/97	140.15	2942.95
04/22/97	140.97	2942.13	06/07/97	139.84	2943.26	07/23/97	140.05	2943.05	09/07/97	140.18	2942.92
04/23/97	140.84	2942.26	06/08/97	139.85	2943.25	07/24/97	140.08	2943.02	09/08/97	140.22	2942.88
04/24/97	140.88	2942.22	06/09/97	139.91	2943.19	07/25/97	140.12	2942.98	09/09/97	140.19	2942.91
04/25/97	140.96	2942.14	06/10/97	139.92	2943.18	07/26/97	140.18	2942.92	09/10/97	140.17	2942.93
04/26/97	140.96	2942.14	06/11/97	139.87	2943.23	07/27/97	140.24	2942.86	09/11/97	140.05	2943.05
04/27/97	140.76	2942.34	06/12/97	139.78	2943.32	07/28/97	140.35	2942.75	09/12/97	140.00	2943.10
04/28/97	140.73	2942.37	06/13/97	139.75	2943.35	07/29/97	140.46	2942.64	09/13/97	140.03	2943.07
04/29/97	140.68	2942.42	06/14/97	139.75	2943.35	07/30/97	140.40	2942.70	09/14/97	139.99	2943.11
04/30/97	140.65	2942.45	06/15/97	139.78	2943.32	07/31/97	140.27	2942.83	09/15/97	139.94	2943.16
05/01/97	140.65	2942.45	06/16/97	139.81	2943.29	08/01/97	140.23	2942.87	09/16/97	139.94	2943.16
05/02/97	140.69	2942.41	06/17/97	139.78	2943.32	08/02/97	140.18	2942.92	09/17/97	139.87	2943.23
05/03/97	140.67	2942.43	06/18/97	139.75	2943.35	08/03/97	140.22	2942.88	09/18/97	139.90	2943.20
05/04/97	140.69	2942.41	06/19/97	139.76	2943.34	08/04/97	140.34	2942.76	09/19/97	140.03	2943.07
05/05/97	140.72	2942.38	06/20/97	139.73	2943.37	08/05/97	140.55	2942.55	09/20/97	140.09	2943.01
05/06/97	140.63	2942.47	06/21/97	139.68	2943.42	08/06/97	140.58	2942.52	09/21/97	140.07	2943.03
05/07/97	140.69	2942.41	06/22/97	139.70	2943.40	08/07/97	140.48	2942.62	09/22/97	140.06	2943.04
05/08/97	140.71	2942.39	06/23/97	139.75	2943.35	08/08/97	140.29	2942.81	09/23/97	140.07	2943.03

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
09/24/97	140.02	2943.08	11/09/97	139.79	2943.31	12/25/97	140.03	2943.07	02/09/98	139.63	2943.47
09/25/97	139.95	2943.15	11/10/97	139.70	2943.40	12/26/97	140.07	2943.03	02/10/98	139.71	2943.39
09/26/97	139.86	2943.24	11/11/97	139.64	2943.46	12/27/97	139.96	2943.14	02/11/98	139.71	2943.39
09/27/97	139.94	2943.16	11/12/97	139.55	2943.55	12/28/97	140.01	2943.09	02/12/98	139.69	2943.41
09/28/97	139.99	2943.11	11/13/97	139.58	2943.52	12/29/97	139.92	2943.18	02/13/98	139.61	2943.49
09/29/97	139.94	2943.16	11/14/97	139.61	2943.49	12/30/97	139.95	2943.15	02/14/98	139.52	2943.58
09/30/97	139.84	2943.26	11/15/97	139.68	2943.42	12/31/97	139.86	2943.24	02/15/98	139.44	2943.66
10/01/97	139.81	2943.29	11/16/97	139.69	2943.41	01/01/98	139.66	2943.44	02/16/98	139.54	2943.56
10/02/97	139.70	2943.40	11/17/97	139.64	2943.46	01/02/98	139.58	2943.52	02/17/98	139.57	2943.53
10/03/97	139.73	2943.37	11/18/97	139.65	2943.45	01/03/98	139.64	2943.46	02/18/98	139.65	2943.45
10/04/97	139.69	2943.41	11/19/97	139.53	2943.57	01/04/98	139.63	2943.47	02/19/98	139.72	2943.38
10/05/97	139.77	2943.33	11/20/97	139.50	2943.60	01/05/98	139.71	2943.39	02/20/98	139.63	2943.47
10/06/97	139.80	2943.30	11/21/97	139.51	2943.59	01/06/98	139.50	2943.60	02/21/98	139.46	2943.64
10/07/97	139.67	2943.43	11/22/97	139.57	2943.53	01/07/98	139.46	2943.64	02/22/98	139.52	2943.58
10/08/97	139.71	2943.39	11/23/97	139.51	2943.59	01/08/98	139.47	2943.63	02/23/98	139.63	2943.47
10/09/97	139.66	2943.44	11/24/97	139.47	2943.63	01/09/98	139.55	2943.55	02/24/98	139.59	2943.51
10/10/97	139.69	2943.41	11/25/97	139.53	2943.57	01/10/98	139.54	2943.56	02/25/98	139.63	2943.47
10/11/97	139.65	2943.45	11/26/97	139.45	2943.65	01/11/98	139.59	2943.51	02/26/98	139.68	2943.42
10/12/97	139.76	2943.34	11/27/97	139.40	2943.70	01/12/98	139.64	2943.46	02/27/98	139.77	2943.33
10/13/97	139.90	2943.20	11/28/97	139.50	2943.60	01/13/98	139.55	2943.55	02/28/98	139.87	2943.23
10/14/97	139.93	2943.17	11/29/97	139.53	2943.57	01/14/98	139.54	2943.56	03/01/98	139.90	2943.20
10/15/97	139.99	2943.11	11/30/97	139.50	2943.60	01/15/98	139.47	2943.63	03/02/98	139.80	2943.30
10/16/97	139.94	2943.16	12/01/97	139.60	2943.50	01/16/98	139.51	2943.59	03/03/98	139.59	2943.51
10/17/97	139.82	2943.28	12/02/97	139.65	2943.45	01/17/98	139.48	2943.62	03/04/98	139.68	2943.42
10/18/97	139.82	2943.28	12/03/97	139.69	2943.41	01/18/98	139.57	2943.53	03/05/98	139.73	2943.37
10/19/97	139.84	2943.26	12/04/97	139.69	2943.41	01/19/98	139.42	2943.68	03/06/98	139.74	2943.36
10/20/97	139.90	2943.20	12/05/97	139.68	2943.42	01/20/98	139.49	2943.61	03/07/98	139.79	2943.31
10/21/97	139.87	2943.23	12/06/97	139.58	2943.52	01/21/98	139.58	2943.52	03/08/98	139.81	2943.29
10/22/97	139.73	2943.37	12/07/97	139.47	2943.63	01/22/98	139.62	2943.48	03/09/98	139.87	2943.23
10/23/97	139.66	2943.44	12/08/97	139.41	2943.69	01/23/98	139.65	2943.45	03/10/98	139.88	2943.22
10/24/97	139.79	2943.31	12/09/97	139.58	2943.52	01/24/98	139.54	2943.56	03/11/98	139.88	2943.22
10/25/97	139.84	2943.26	12/10/97	139.82	2943.28	01/25/98	139.64	2943.46	03/12/98	139.85	2943.25
10/26/97	139.77	2943.33	12/11/97	139.94	2943.16	01/26/98	139.66	2943.44	03/13/98	139.78	2943.32
10/27/97	139.70	2943.40	12/12/97	139.95	2943.15	01/27/98	139.60	2943.50	03/14/98	139.77	2943.33
10/28/97	139.66	2943.44	12/13/97	139.87	2943.23	01/28/98	139.70	2943.40	03/15/98	139.77	2943.33
10/29/97	139.56	2943.54	12/14/97	139.68	2943.42	01/29/98	139.59	2943.51	03/16/98	139.69	2943.41
10/30/97	139.48	2943.62	12/15/97	139.69	2943.41	01/30/98	139.61	2943.49	03/17/98	139.70	2943.40
10/31/97	139.53	2943.57	12/16/97	139.82	2943.28	01/31/98	139.67	2943.43	03/18/98	139.83	2943.27
11/01/97	139.72	2943.38	12/17/97	139.77	2943.33	02/01/98	139.61	2943.49	03/19/98	139.85	2943.25
11/02/97	139.84	2943.26	12/18/97	139.83	2943.27	02/02/98	139.60	2943.50	03/20/98	139.80	2943.30
11/03/97	139.71	2943.39	12/19/97	139.96	2943.14	02/03/98	139.55	2943.55	03/21/98	139.74	2943.36
11/04/97	139.70	2943.40	12/20/97	139.84	2943.26	02/04/98	139.48	2943.62	03/22/98	139.70	2943.40
11/05/97	139.75	2943.35	12/21/97	139.79	2943.31	02/05/98	139.54	2943.56	03/23/98	139.64	2943.46
11/06/97	139.66	2943.44	12/22/97	139.92	2943.18	02/06/98	139.57	2943.53	03/24/98	139.56	2943.54
11/07/97	139.65	2943.45	12/23/97	139.88	2943.22	02/07/98	139.52	2943.58	03/25/98	139.51	2943.59
11/08/97	139.76	2943.34	12/24/97	139.95	2943.15	02/08/98	139.52	2943.58	03/26/98	139.50	2943.60

Groundwater Hydrograph

Well Identification

FVGSB3 (continued)

Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
03/27/98	139.53	2943.57	05/12/98	140.22	2942.88	06/27/98	139.63	2943.47			
03/28/98	139.58	2943.52	05/13/98	140.35	2942.75	06/28/98	139.66	2943.44			
03/29/98	139.66	2943.44	05/14/98	140.56	2942.54	06/29/98	139.71	2943.39			
03/30/98	139.66	2943.44	05/15/98	140.65	2942.45	06/30/98	139.71	2943.39			
03/31/98	139.66	2943.44	05/16/98	140.62	2942.48	07/01/98	139.72	2943.38			
04/01/98	139.66	2943.44	05/17/98	140.49	2942.61	07/02/98	139.73	2943.37			
04/02/98	139.69	2943.41	05/18/98	140.52	2942.58	07/03/98	139.73	2943.37			
04/03/98	139.82	2943.28	05/19/98	140.49	2942.61	07/04/98	139.71	2943.39			
04/04/98	139.75	2943.35	05/20/98	140.39	2942.71	07/05/98	139.71	2943.39			
04/05/98	139.77	2943.33	05/21/98	140.31	2942.79	07/06/98	139.73	2943.37			
04/06/98	139.75	2943.35	05/22/98	140.23	2942.87	07/07/98	139.74	2943.36			
04/07/98	139.79	2943.31	05/23/98	140.22	2942.88	07/08/98	139.77	2943.33			
04/08/98	139.88	2943.22	05/24/98	140.24	2942.86	07/09/98	139.73	2943.37			
04/09/98	139.91	2943.19	05/25/98	140.16	2942.94	07/10/98	139.71	2943.39			
04/10/98	139.86	2943.24	05/26/98	140.04	2943.06	07/11/98	139.71	2943.39			
04/11/98	139.69	2943.41	05/27/98	140.04	2943.06	07/12/98	139.73	2943.37			
04/12/98	139.67	2943.43	05/28/98	140.14	2942.96	07/13/98	139.75	2943.35			
04/13/98	139.76	2943.34	05/29/98	140.08	2943.02	07/14/98	139.78	2943.32			
04/14/98	139.79	2943.31	05/30/98	140.11	2942.99	07/15/98	139.90	2943.20			
04/15/98	139.83	2943.27	05/31/98	140.14	2942.96	07/16/98	140.00	2943.10			
04/16/98	139.87	2943.23	06/01/98	140.00	2943.10	07/17/98	140.08	2943.02			
04/17/98	139.95	2943.15	06/02/98	140.05	2943.05	07/18/98	140.08	2943.02			
04/18/98	140.00	2943.10	06/03/98	140.02	2943.08	07/19/98	140.14	2942.96			
04/19/98	139.99	2943.11	06/04/98	140.02	2943.08	07/20/98	140.29	2942.81			
04/20/98	140.06	2943.04	06/05/98	140.05	2943.05	07/21/98	140.30	2942.80			
04/21/98	140.06	2943.04	06/06/98	140.05	2943.05						
04/22/98	139.98	2943.12	06/07/98	140.01	2943.09						
04/23/98	139.81	2943.29	06/08/98	140.01	2943.09						
04/24/98	139.73	2943.37	06/09/98	139.98	2943.12						
04/25/98	139.83	2943.27	06/10/98	139.92	2943.18						
04/26/98	139.98	2943.12	06/11/98	139.93	2943.17						
04/27/98	140.05	2943.05	06/12/98	139.92	2943.18						
04/28/98	140.04	2943.06	06/13/98	139.89	2943.21						
04/29/98	139.98	2943.12	06/14/98	139.95	2943.15						
04/30/98	139.99	2943.11	06/15/98	139.80	2943.30						
05/01/98	139.98	2943.12	06/16/98	139.71	2943.39						
05/02/98	139.93	2943.17	06/17/98	139.78	2943.32						
05/03/98	139.96	2943.14	06/18/98	139.75	2943.35						
05/04/98	140.06	2943.04	06/19/98	139.73	2943.37						
05/05/98	140.03	2943.07	06/20/98	139.79	2943.31						
05/06/98	140.09	2943.01	06/21/98	139.79	2943.31						
05/07/98	140.13	2942.97	06/22/98	139.74	2943.36						
05/08/98	140.14	2942.96	06/23/98	139.67	2943.43						
05/09/98	140.18	2942.92	06/24/98	139.59	2943.51						
05/10/98	140.29	2942.81	06/25/98	139.57	2943.53						
05/11/98	140.28	2942.82	06/26/98	139.59	2943.51						

Groundwater Hydrograph

Well Identification
FVGSC

MBMG Site #
M:148193

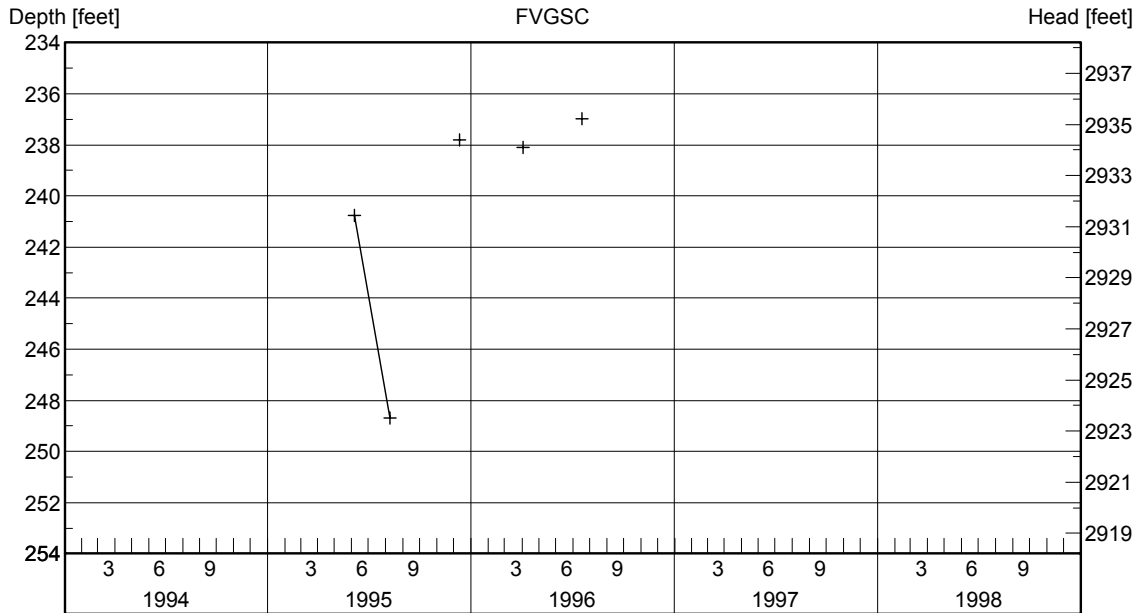
Well Name or Well Owner
MT DNRC Flathead Valley Groundwater Study well C

Location	30N 22W 36 BDCC
----------	-----------------

Ground Surface Elev. (ft)
3170.00

Measuring Point Elev. (ft) 3172.20

Well Depth below m.p. (ft)	439.20
----------------------------	--------



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)
06/05/95	240.75	2931.45
08/09/95	248.69	2923.51
12/12/95	237.81	2934.39
04/03/96	238.10	2934.10
07/18/96	236.98	2935.22

Groundwater Hydrograph

Well Identification
FVGSD

MBMG Site #
M:148194

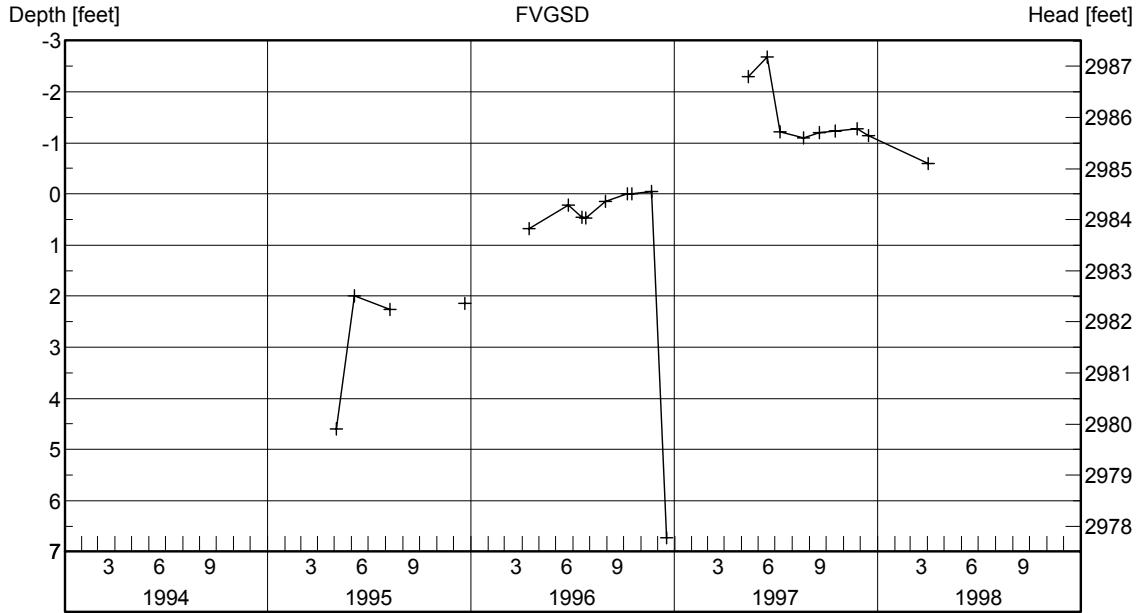
Well Name or Well Owner
MT DNRC Flathead Valley Groundwater Study well D

Location
30N 22W 34 CBAA

Ground Surface Elev. (ft)
2981.00

Measuring Point Elev. (ft)
2984.00

Well Depth below m.p. (ft)
380.00



Depth to groundwater and head are reported from measuring point

Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)	Date	Depth (ft)	Head (ft)
05/04/95	4.60	2979.40	04/02/98	-0.60	2984.60						
06/05/95	2.00	2982.00									
08/09/95	2.26	2981.74									
12/21/95	2.14	2981.86									
04/15/96	0.68	2983.32									
06/24/96	0.22	2983.78									
07/18/96	0.45	2983.55									
07/25/96	0.47	2983.53									
08/30/96	0.14	2983.86									
10/08/96	0.00	2984.00									
10/16/96	0.00	2984.00									
11/21/96	-0.05	2984.05									
12/17/96	6.73	2977.27									
05/14/97	-2.29	2986.29									
06/17/97	-2.68	2986.68									
07/09/97	-1.22	2985.22									
08/20/97	-1.10	2985.10									
09/18/97	-1.21	2985.21									
10/16/97	-1.23	2985.23									
11/25/97	-1.28	2985.28									
12/15/97	-1.15	2985.15									

Appendix C1. Inventory of Water Quality

Field Parameters

Site Name	Site Id#	Location	Sample Date	Water Tmp	Conductance (µmhos/cm)	pH	Hardness (mg/l)	TDS (mg/l)
FVGS9	M:085628	30N 20W 20 DCCA	Apr 20, 1994	8.9	394	7.69	210.13	228.51
FVGS30	M:086652	30N 22W 35 BDDD	Sep 10, 1996	9.6	778	7.2	401.17	463.93
FVGS36	M:120908	30N 22W 35 CCDA	Jul 26, 1996	9.7	398	7.7	186.80	236.23
FVGS38	M:149142	30N 21W 22 AADC	Jun 06, 1995		439	7.73	213.76	246.39
FVGSA1	M:148187	30N 20W 20 CBBB	May 03, 1995	8.9	402	7.71	221.45	227.87
FVGSA2	M:148188	30N 20W 19 DAAB	May 03, 1995	9.2	355	7.48	187.53	195.52
FVGSA3	M:148189	30N 20W 19 DAAC	May 03, 1995	8.5	382	7.43	205.62	209.70
FVGSB1	M:148190	30N 21W 21 CAAC	Jun 06, 1995		390	7.89	160.14	212.80
FVGSB2	M:148191	30N 21W 21 CABD	Jun 06, 1995		456	7.62	204.69	248.11
FVGSB3	M:148192	30N 21W 21 CACA	Jun 06, 1995		497	7.77	245.95	281.90
FVGSC	M:148193	30N 22W 36 BDCC	Jun 05, 1995		420	7.78	171.21	229.04
FVGSD	M:148194	30N 22W 34 CBAA	Jun 05, 1995		437	7.84	195.91	248.95
M006618	M:006618	30N 21W 36 CCCC	May 24, 1983		249	8.05	130.53	136.03
M084490	M:084490	29N 22W 04 CADC	Sep 08, 1996	9.5	484	7.1	269.29	295.67
M086214	M:086214	30N 21W 21 BCCC	Apr 20, 1994	9.5	575	7.31	285.25	336.59
M127372	M:127372	30N 21W 23 DDCB	Aug 09, 1996	15.0	454	7.4	241.36	252.40

Major Chemical Constituents (mg/l)

Site Name	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Carbonate	Silica	Sulfate	Chloride
FVGS9	49.7	20.9	7.6	1.7	265.0		12.3	4.2	0.5
FVGS30	70.0	55.0	31.3	3.0	521.2		16.7	16.5	11.0
FVGS36	48.6	15.9	15.7	1.2	256.2		18.5	8.8	1.1
FVGS38	65.0	12.5	11.1	0.8	280.6		13.3	5.0	<0.5
FVGSA1	54.4	20.8	3.5	0.887	261.6		10.7	5.0	3.5
FVGSA2	45.1	18.2	3.2	1.0	226.9		9.8	5.0	1.0
FVGSA3	47.4	21.2	4.0	1.2	241.6		9.6	5.0	2.0
FVGSB1	46.0	11.0	14.3	0.859	238.1		14.5	7.5	1.0
FVGSB2	49.5	19.7	12.8	0.675	288.4		15.0	7.5	0.5
FVGSB3	59.1	23.9	12.3	0.835	333.3		15.3	5.0	0.5
FVGSC	44.5	14.6	21.2	0.9	256.2		13.5	5.0	2.0
FVGSD	47.8	18.6	15.3	1.9	277.2		17.7	10.0	0.5
M006618	38.1	8.6	1.4	0.2	152.3		5.3	4.7	1.4
M084490	60.7	28.6	6.1	2.3	301.3		17.1	27.3	3.1
M086214	60.5	32.6	21.0	1.6	375.0		17.7	14.9	3.0
M127372	66.0	18.6	3.0	1.6	277.2		13.2	4.7	6.0

Minor and Trace Chemical Constituents (mg/l)

Site Name	Aluminum	Arsenic	Barium	Boron	Cadium	Chromium	Copper	Flouride	Iron	Lead
FVGS9	<0.03	<0.001	0.345	<0.03	<0.002	0.0026	<0.002	0.199	0.586	<0.002
FVGS30	<0.03	<0.001	0.3055	<0.03	<0.002	0.0131	<0.002	<1.0	0.011	<0.002
FVGS36	<0.03	<0.001	0.1458	<0.03	<0.002	0.0034	<0.002	<1.0	0.167	<0.002
FVGS38	<0.03	<0.001	0.1537	<0.08	<0.002	<0.002	<0.002	0.07	0.279	<0.002
FVGSA1	0.188	<0.001	0.2728	<0.03	<0.002	0.0035	<0.002	0.07	0.12	<0.002
FVGSA2	<0.03	<0.001	0.2595	<0.03	<0.002	0.0025	<0.002	0.08	0.323	<0.002

Minor and Trace Chemical Constituents (mg/l)

Site Name	Aluminum	Arsenic	Barium	Boron	Cadium	Chromium	Copper	Flouride	Iron	Lead
FVGSA3	<0.03	<0.001	0.3319	<0.03	<0.002	0.0024	<0.002	0.08	0.175	<0.002
FVGSB1	<0.03	<0.001	0.122	<0.08	<0.002	<0.002	<0.002	0.15	0.157	<0.002
FVGSB2	<0.03	<0.001	0.163	<0.08	<0.002	<0.002	<0.002	0.14	0.191	<0.002
FVGSB3	<0.03	<0.001	0.2104	<0.08	<0.002	<0.002	<0.002	0.17	0.45	<0.002
FVGSC	<0.03	0.001	0.1243	<0.08	<0.002	<0.002	<0.002	0.52	0.573	<0.002
FVGSD	<0.03	0.0026	0.4205	<0.08	<0.002	<0.002	<0.002	0.26	<0.003	<0.002
M006618	<0.03			0.02	<0.002	<0.002	<0.002	0.08	<0.002	<0.04
M084490	<0.03	0.001	<0.01	<0.03	<0.002	0.0044	<0.002	<1.0	0.004	<0.002
M086214	<0.03	<0.001	0.241	<0.03	<0.002	0.0038	<0.002	0.13	0.021	<0.002
M127372	<0.03	<0.001	0.1526	<0.03	<0.002	0.0082	0.0022	<1.0	0.012	<0.002

Minor and Trace Chemical Constituents (mg/l)

Site Name	Manganese	Molybdenum	Nickel	Nitrate	Phosphate	Selenium	Silver	Strontium	Zinc
FVGS9	0.235	<0.01	<0.002	<0.1	<0.2	<0.001	<0.001	0.221	0.0511
FVGS30	<0.002	<0.01	0.0062	3.6		<0.001	<0.001	0.251	0.0658
FVGS36	<0.002	<0.01	0.0046	<0.05		<0.001	<0.001	0.104	0.0517
FVGS38	0.102	<0.01	<0.002		<0.2	<0.001	<0.001	0.099	0.0079
FVGSA1	0.027	<0.01	<0.002		<0.2	<0.001	<0.001	0.112	0.0023
FVGSA2	0.042	<0.01	<0.002		<0.2	<0.001	<0.001	0.1	0.0038
FVGSA3	0.029	<0.01	<0.002		<0.2	<0.001	<0.001	0.124	0.0035
FVGSB1	0.04	<0.01	<0.002		<0.2	<0.001	<0.001	0.066	<0.002
FVGSB2	0.034	<0.01	<0.002		<0.2	<0.001	<0.001	0.104	<0.002
FVGSB3	0.162	<0.01	<0.002		<0.2	<0.002	<0.001	0.134	<0.002
FVGSC	0.033	<0.01	<0.002			<0.001	<0.001	0.081	0.0105
FVGSD	0.333	<0.01	<0.002		<0.2	<0.001	<0.001	0.183	0.0085
M006618	<0.001	<0.02	<0.01	1.22	0.024		<0.002	0.057	0.005
M084490	<0.002	<0.01	0.0043	2.0		<0.001	<0.001	0.130	0.0412
M086214	<0.002	<0.01	<0.002	0.18	<0.2	<0.001	<0.001	0.159	0.232
M127372	<0.002	<0.01	0.0071	2.7		<0.001	<0.001	0.064	0.0306

Summary of Milliequivalents per Liter for Selected Chemical Constituents

Site Name	Na	K	Ca	Mg	Cl	HCO ₃	SO ₄	Na	K	Ca	Mg	Cl	HCO ₃	SO ₄
	meq/l	meq/l	meq/l	meq/l	meq/l	meq/l	meq/l	%meq/l	%meq/l	%meq/l	%meq/l	%meq/l	%meq/l	%meq/l
FVGS9	0.331	0.043	2.480	1.720	0.014	4.343	0.087	7.23	0.95	54.22	37.60	0.32	97.72	1.97
FVGS30	1.362	0.077	3.493	4.526	0.310	8.542	0.344	14.40	0.81	36.93	47.86	3.37	92.89	3.74
FVGS36	0.683	0.031	2.425	1.308	0.031	4.199	0.183	15.36	0.69	54.53	29.42	0.70	95.15	4.15
FVGS38	0.483	0.020	3.243	1.029	0.000	4.599	0.104	10.11	0.43	67.92	21.54	0.00	97.79	2.21
FVGSA1	0.152	0.023	2.715	1.712	0.099	4.288	0.104	3.31	0.49	59.00	37.20	2.20	95.48	2.32
FVGSA2	0.139	0.026	2.250	1.498	0.028	3.719	0.104	3.56	0.65	57.51	38.27	0.73	96.56	2.70
FVGSA3	0.174	0.031	2.365	1.745	0.056	3.960	0.104	4.03	0.71	54.82	40.43	1.37	96.10	2.53
FVGSB1	0.622	0.022	2.295	0.905	0.028	3.902	0.156	16.18	0.57	59.70	23.54	0.69	95.49	3.82
FVGSB2	0.557	0.017	2.470	1.621	0.014	4.727	0.156	11.94	0.37	52.95	34.75	0.29	96.52	3.19
FVGSB3	0.535	0.021	2.949	1.967	0.014	5.463	0.104	9.78	0.39	53.89	35.94	0.25	97.88	1.87
FVGSC	0.922	0.023	2.221	1.201	0.056	4.199	0.104	21.12	0.53	50.85	27.51	1.29	96.32	2.39
FVGSD	0.666	0.049	2.385	1.531	0.014	4.543	0.208	14.37	1.05	51.52	33.06	0.30	95.34	4.37
M006618	0.061	0.005	1.901	0.708	0.039	2.496	0.098	2.28	0.19	71.08	26.46	1.50	94.78	3.72
M084490	0.265	0.059	3.029	2.353	0.087	4.938	0.568	4.65	1.03	53.08	41.24	1.56	88.28	10.16
M086214	0.913	0.041	3.019	2.683	0.085	6.146	0.310	13.72	0.61	45.36	40.30	1.29	93.96	4.74
M127372	0.130	0.041	3.293	1.531	0.169	4.543	0.098	2.61	0.82	65.93	30.64	3.52	94.45	2.03

Appendix C2. Water Quality Analysis Reports

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 94Q0954

State: Montana
Latitude-Longitude: 48D20'34"N 114D11'01"W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PH
Agency + Sampler: MBMG*LAR
Bottle number: M:85628
Date Sampled: Apr 20, 1994
Time Sampled: 17:54
Lab + Analyst: MBMG*GAL
Date Complete: Jun 9, 1994
Sample Handling: 312
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 20W 20 DCCA 01
MBMG Site: M:085628
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3080.0 ft
Sustained Yield:
Yield Meas Method:
Total Depth of Well: 149 ft. rept.
SWL from g.s.:
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: Henneberg, Tom * FVGS9
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	49.7	2.48	Bicarbonate (HCO ₃)	265.	4.34
Magnesium (Mg)	20.9	1.72	Carbonate (CO ₃)		0.00
Sodium (Na)	7.6	0.33	Chloride (Cl)	0.5	0.01
Potassium (K)	1.7	0.04	Sulfate (SO ₄)	4.2	0.09
Iron (Fe)	0.586	0.03	Nitrate (as N)	<0.1	0.00
Manganese (Mn)	0.235	0.01	Fluoride (F)	0.199	0.01
Silica (SiO ₂)	12.3		OrthoPhosphate (as P)	<0.025	0.00
Total Cations:		4.62	Total Anions:		4.46

Calculated Dissolved Solid: 228.51
Sum of Diss, Constituent: 362.97
Field conductivity, micromhos: 394.
Lab conductivity, micromhos: 401.
Field PH: 7.69
Laboratory PH: 7.65

Total Hardness as CaCO₃: 210.13
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 217.35
Field Alkalinity as CaCO₃:
Ryznar Stability Index: 7.28
Langlier Saturation Index: 0.18
Sodium Adsorption Ratio: 0.23

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 8.9E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 345.
BERYLL, DISS (µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <50.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 2.6
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) 10.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) <2.
NITRITE, TOTAL (mg/l as N) <0.1
PHOSPHATE, TO. DISS (mg/l as P) <0.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 221.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 51.1
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
54.2	37.6	7.2	1.0	0.3	2.0	97.7	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 97Q0148

State: Montana
Latitude-Longitude: 48D19'14"N 114D21'43"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: MBMG*JR
Bottle number: 86652
Date Sampled: Sep 10, 1996
Time Sampled: 15:40
Lab + Analyst: MBMG*TSH
Date Complete: Sep 25, 1996
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 22W 35 BDDD 01
MBMG Site: M:086652
Project Id: GWCP02
Station Id:
Sample Source: Well
Land Surface Altitude: 3010.0 ft
Sustained Yield: 5.5 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 90.5 ft. rept.
SWL from g.s.: 73.50 ft. meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: DNRC Forestry * FVGS30
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	70.	3.49	Bicarbonate (HCO3)	521.2	8.54
Magnesium (Mg)	55.	4.52	Carbonate (CO3)		0.00
Sodium (Na)	31.3	1.36	Chloride (Cl)	11.0	0.31
Potassium (K)	3.0	0.08	Sulfate (SO4)	16.5	0.34
Iron (Fe)	0.011	0.00	Nitrate (as N)	3.6 P	0.26
Manganese (Mn)	<0.002	0.00	Fluoride (F)	<0.1	0.00
Silica (SiO2)	16.7		OrthoPhosphate (as P)		0.00
Total Cations:		9.46	Total Anions:		9.45

Calculated Dissolved Solid: 463.93
Sum of Diss, Constituent: 728.38
Field conductivity, micromhos: 778.
Lab conductivity, micromhos: 781.
Field PH: 7.2
Laboratory PH: 7.2

Total Hardness as CaCO3: 401.17
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 427.47
Field Alkalinity as CaCO3: 408.
Ryznar Stability Index: 6.85
Langlier Saturation Index: 0.18
Sodium Adsorption Ratio: 0.68

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 9.6E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 305.5
BERYLL, DISS (µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <100.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 13.1
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) 6.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) 6.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 251.
THALLIUM, DISS (µg/l as TL) <5.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 65.8
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
36.9	47.8	14.4	0.8	3.4	3.7	92.9	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 97Q0138

State: Montana
Latitude-Longitude: 48D18'51"N 114D22'06"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: MBMG*JR
Bottle number: 120908
Date Sampled: Jul 26, 1996
Time Sampled: 14:10
Lab + Analyst: MBMG*TSH
Date Complete: Sep 11, 1996
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 22W 35 CCDA 01
MBMG Site: M:120908
Project Id: GWCP02
Station Id:
Sample Source: Well
Land Surface Altitude: 3065.0 ft.
Sustained Yield: 10.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 430 ft. rept.
SWL from g.s.: 141.10 ft.
Casing Diameter: 8.0 in.
Casing Type: steel
Completion Type: 1/4" x 2" holes
Perforation Interval: 418.0 to 428.0 ft.

Sampling Site: Zavakil, Robert * FVGS36
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	48.6	2.43	Bicarbonate (HCO ₃)	256.2	4.20
Magnesium (Mg)	15.9	1.31	Carbonate (CO ₃)		0.00
Sodium (Na)	15.7	0.68	Chloride (Cl)	1.1	0.03
Potassium (K)	1.2	0.03	Sulfate (SO ₄)	8.8	0.18
Iron (Fe)	0.167	0.01	Nitrate (as N)	<.05 P	0.00
Manganese (Mn)	<0.002	0.00	Fluoride (F)	<1.	0.00
Silica (SiO ₂)	18.5		OrthoPhosphate (as P)		0.00
Total Cations:		4.46	Total Anions:		4.41

Calculated Dissolved Solid:	236.23	Total Hardness as CaCO ₃ :	186.80
Sum of Diss, Constituent:	366.22	Field Hardness as CaCO ₃ :	
Field conductivity, micromhos:	398.	Total Alkalinity as CaCO ₃ :	210.13
Lab conductivity, micromhos:	396.	Field Alkalinity as CaCO ₃ :	276.
Field PH:	7.7	Ryznar Stability Index:	7.38
Laboratory PH:	7.6	Langlier Saturation Index:	0.11
		Sodium Adsorption Ratio:	0.50

Parameter	Value	Parameter	Value
Field Temp, Air		Field Temp, Water	9.7E C
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	4.6
BARIUM, DISS (µg/l as BA)	145.8	SELENIUM, DISS (µg/l as SE)	<1.
BERYLL, DISS (µg/l as BE)	<2.	SILVER, DISS (µg/l as AG)	<1.
BORON, DISS (µg/l as B)	<30.	STRONTIUM, DISS (µg/l as SR)	104.
BROMIDE, DISS (µg/l as BR)	<100.	THALLIUM, DISS (µg/l as TL)	<5.
CADMIUM, DISS (µg/l as CD)	<2.	TITANIUM, DISS (µg/l as TI)	<10.
CHROMIUM, DISS (µg/l as CR)	3.4	VANADIUM, DISS (µg/l as V)	<5.
COBALT, DISS (µg/l as CO)	<2.	ZINC, DISS (µg/l as ZN)	51.7
COPPER, DISS (µg/l as CU)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.
LEAD, DISS (µg/l as PB)	<2.		

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
54.5	29.4	15.4	0.7	0.7	4.2	95.2	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0565

State: Montana
Latitude-Longitude: D ' 'N D ' 'W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 110ALVM
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: Cross
Date Sampled: Jun 6, 1995
Time Sampled: 16:15
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Unused

County: Flathead
Site Location: 30N 31W 22 DDDA 01
MBMG Site: M:149142
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3000.0 ft
Sustained Yield: 8.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 265 ft. rept.
SWL from g.s.: 47.80 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: Cross * FVGS38
Geologic Source: Alluvium (Quaternary)

	mg/l	meq/l
Calcium (Ca)	65.0	3.24
Magnesium (Mg)	12.5	1.03
Sodium (Na)	11.1	0.48
Potassium (K)	0.8	0.02
Iron (Fe)	0.279	0.01
Manganese (Mn)	0.102	0.00
Silica (SiO2)	13.3	
Total Cations:		4.80

	mg/l	meq/l
Bicarbonate (HCO3)	280.6	4.60
Carbonate (CO3)		0.00
Chloride (Cl)	<0.5	0.00
Sulfate (SO4)	5.0	0.10
Nitrate (as N)		0.00
Fluoride (F)	0.07	0.00
OrthoPhosphate (as P)	<0.1	0.00
Total Anions:		4.71

Calculated Dissolved Solid: 246.39
Sum of Diss, Constituent: 388.76
Field conductivity, micromhos:
Lab conductivity, micromhos: 439.
Field PH:
Laboratory PH: 7.73

Total Hardness as CaCO3: 213.76
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 230.14
Field Alkalinity as CaCO3:
Ryznar Stability Index: 6.92
Langlier Saturation Index: 0.40
Sodium Adsorption Ratio: 0.33

Parameter Value
Field Temp, Air

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 153.7
BERYLL, DISS (µg/l as BE) <2.
BORON, DISS (µg/l as B) <80.
BROMIDE, DISS (µg/l as BR) <50.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) <2.
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

Parameter Value
Field Temp, Water

LITHIUM, DISS (µg/l as LI) <6.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) <2.
PHOSPHATE, TOTAL DISS (mg/l as P) <0.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 99.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 7.9
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
67.9	21.5	10.1	0.4	0.0	2.2	97.8	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0471

State: Montana
Latitude-Longitude: D ' 'N D ' 'W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PH
Agency + Sampler: MBMG*LAR
Bottle number: FVGS-A1
Date Sampled: May 3, 1995
Time Sampled: 18:50
Lab + Analyst: MBMG*TSH
Date Complete: May 23, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 20W 20 CBBC 01
MBMG Site: M:148187
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3040.0 ft
Sustained Yield: 15.8 gpm
Yield Meas Method:
Total Depth of Well: 157 ft. rept.
SWL from g.s.: 70.68 ft meas.
Casing Diameter:
Casing Type:
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well A-1
Geologic Source: Cenozoic valley fill undifferentiated

		mg/l	meq/l			mg/l	meq/l
Calcium	(Ca)	54.4	2.71	Bicarbonate	(HCO3)	261.2	4.29
Magnesium	(Mg)	20.8	1.71	Carbonate	(CO3)		0.00
Sodium	(Na)	3.5	0.15	Chloride	(Cl)	3.5	0.10
Potassium	(K)	0.887	0.02	Sulfate	(SO4)	5.0	0.10
Iron	(Fe)	0.12	0.01	Nitrate	(as N)		0.00
Manganese	(Mn)	0.027	0.00	Fluoride	(F)	0.07	0.00
Silica	(SiO2)	10.7		OrthoPhosphate (as P)		<0.1	0.00
Total Cations:			4.63	Total Anions:			4.49

Calculated Dissolved Solid: 227.87
Sum of Diss, Constituent: 360.60
Field conductivity, micromhos: 402.
Lab conductivity, micromhos: 419.
Field PH: 7.71
Laboratory PH: 7.90

Total Hardness as CaCO3: 221.45
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 214.56
Field Alkalinity as CaCO3:
Ryznar Stability Index: 6.97
Langlier Saturation Index: 0.47
Sodium Adsorption Ratio: 0.10

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 8.9 E C

ALUMINUM, DISS (µg/l as AL) 188.5
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 272.8
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <50.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 3.5
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.
LITHIUM, DISS (µg/l as LI) <6.

MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) <2.
NITRITE, TOTAL (mg/l as N) <0.25
PHOSPHATE, TO. DISS (µg/l as P) <0.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 112.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 2.3
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
59.0	37.2	3.3	0.5	2.2	2.3	95.5	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0473

State: Montana
Latitude-Longitude: D ' ' N D ' ' W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PH
Agency + Sampler: MBMG*LAR
Bottle number: FVGS-A2
Date Sampled: May 3, 1995
Time Sampled: 15:49
Lab + Analyst: MBMG*TSH
Date Complete: May 23, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Unused

County: Flathead
Site Location: 30N 20W 19 DAAB 01
MBMG Site: M:148188
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3040.0 ft
Sustained Yield: 16.7 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 518 ft. rept.
SWL from g.s.: 77.23 ft. meas.
Casing Diameter:
Casing Type:
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well A2
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	45.1	2.25	Bicarbonate (HCO ₃)	226.9	3.72
Magnesium (Mg)	18.2	1.50	Carbonate (CO ₃)		0.00
Sodium (Na)	3.2	0.14	Chloride (Cl)	1.0	0.03
Potassium (K)	1.0	0.03	Sulfate (SO ₄)	5.0	0.10
Iron (Fe)	0.323	0.02	Nitrate (as N)		0.00
Manganese (Mn)	0.042	0.00	Fluoride (F)	0.08	0.00
Silica (SiO ₂)	9.8		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		3.93	Total Anions:		3.86

Calculated Dissolved Solid:	195.52	Total Hardness as CaCO ₃ :	187.53
Sum of Diss, Constituent:	310.65	Field Hardness as CaCO ₃ :	
Field conductivity, micromhos:	355.	Total Alkalinity as CaCO ₃ :	186.10
Lab conductivity, micromhos:	353.	Field Alkalinity as CaCO ₃ :	
Field PH:	7.48	Ryznar Stability Index:	7.29
Laboratory PH:	7.86	Langlier Saturation Index:	0.28
		Sodium Adsorption Ratio:	0.10

Parameter	Value	Parameter	Value
Field Temp, Air		Field Temp, Water	9.2E C
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	<2.
BARIUM, DISS (µg/l as BA)	259.5	NITRITE, TOTAL (mg/l as N)	<0.25
BERYLL, DISS (µg/l as BE)	<2.	PHOSPHATE, TO. DISS (mg/l as P)	<0.2
BORON, DISS (µg/l as B)	<30.	SELENIUM, DISS (µg/l as SE)	<1.
BROMIDE, DISS (µg/l as BR)	<50.	SILVER, DISS (µg/l as AG)	<1.
CADMIUM, DISS (µg/l as CD)	<2.	STRONTIUM, DISS (µg/l as SR)	100.
CHROMIUM, DISS (µg/l as CR)	2.5	TITANIUM, DISS (µg/l as TI)	<10.
COBALT, DISS (µg/l as CO)	<2.	VANADIUM, DISS (µg/l as V)	<5.
COPPER, DISS (µg/l as CU)	<2.	ZINC, DISS (µg/l as ZN)	3.8
LEAD, DISS (µg/l as PB)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
57.5	38.3	3.6	0.7	0.7	2.7	96.6	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0472

State: Montana
Latitude-Longitude: D ' ' N D ' ' W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PH
Agency + Sampler: MBMG*LAR
Bottle number: FVGS-A3
Date Sampled: May 3, 1995
Time Sampled: 12:30
Lab + Analyst: MBMG*TSH
Date Complete: May 23, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Unused

County: Flathead
Site Location: 30N 20W 19 DADB 01
MBMG Site: M:148189
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3040.0 ft
Sustained Yield:
Yield Meas Method:
Total Depth of Well: 343 ft. rept.
SWL from g.s.: 73.68 ft. meas.
Casing Diameter:
Casing Type:
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well A3
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	47.4	2.37	Bicarbonate (HCO ₃)	241.6	3.96
Magnesium (Mg)	21.2	1.74	Carbonate (CO ₃)		0.00
Sodium (Na)	4.0	0.17	Chloride (Cl)	2.0	0.06
Potassium (K)	1.2	0.03	Sulfate (SO ₄)	5.0	0.10
Iron (Fe)	0.175	0.01	Nitrate (as N)		0.00
Manganese (Mn)	0.029	0.00	Fluoride (F)	0.08	0.00
Silica (SiO ₂)	9.6		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		4.33	Total Anions:		4.12

Calculated Dissolved Solid: 209.70
Sum of Diss, Constituent: 332.28
Field conductivity, micromhos: 382.
Lab conductivity, micromhos: 391.
Field PH: 7.43
Laboratory PH: 7.58

Total Hardness as CaCO₃: 205.62
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 198.15
Field Alkalinity as CaCO₃:
Ryznar Stability Index: 7.47
Langlier Saturation Index: 0.05
Sodium Adsorption Ratio: 0.12

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 8.5E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 331.9
BERYLL, DISS (µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <50.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 2.4
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) <6.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) <2.
NITRITE, TOTAL (mg/l as N) <0.25
PHOSPHATE, TO. DISS (mg/l as P) <0.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 124.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 3.5
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
54.8	40.4	4.0	0.7	1.4	2.5	96.1	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0570

State: Montana
Latitude-Longitude: 48D21'05"N 114D19'33"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: FVGS-B1
Date Sampled: Jun 6, 1995
Time Sampled: 13:50
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 21W 21 BDAC 01
MBMG Site: M:148190
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3080.0 ft
Sustained Yield: 25.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 277.5 ft. rept.
SWL from g.s.: 134.95 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type: 3/8" x 1 1/2" holes
Perforation Interval: 272.0 ft to 276.0 ft.

Sampling Site: FVGS Monitoring Well B1
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	46.0	2.30	Bicarbonate (HCO ₃)	238.1	3.90
Magnesium (Mg)	11.0	0.90	Carbonate (CO ₃)		0.00
Sodium (Na)	14.3	0.62	Chloride (Cl)	1.0	0.03
Potassium (K)	0.859	0.02	Sulfate (SO ₄)	7.5	0.16
Iron (Fe)	0.157	0.01	Nitrate (as N)		0.00
Manganese (Mn)	0.04	0.00	Fluoride (F)	0.15	0.01
Silica (SiO ₂)	14.5		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		3.86	Total Anions:		4.09

Calculated Dissolved Solid: 212.80
Sum of Diss, Constituent: 333.61
Field conductivity, micromhos:
Lab conductivity, micromhos: 390.
Field PH:
Laboratory PH: 7.89

Total Hardness as CaCO₃: 160.14
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 195.28
Field Alkalinity as CaCO₃:
Ryznar Stability Index: 7.20
Langlier Saturation Index: 0.34
Sodium Adsorption Ratio: 0.49

Parameter	Value	Parameter	Value
Field Temp, Air		Field Temp, Water	
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	<2.
BARIUM, DISS (µg/l as BA)	122.0	PHOSPHATE, TOTAL DISS (mg/l as P)	<0.2
BERYLL, DISS (µg/l as BE)	<2.	SELENIUM, DISS (µg/l as SE)	<1.
BORON, DISS (µg/l as B)	<80.	SILVER, DISS (µg/l as AG)	<1.
BROMIDE, DISS (µg/l as BR)	<50.	STRONTIUM, DISS (µg/l as SR)	66.
CADMIUM, DISS (µg/l as CD)	<2.	TITANIUM, DISS (µg/l as TI)	<10.
CHROMIUM, DISS (µg/l as CR)	<2.	VANADIUM, DISS (µg/l as V)	<5.
COBALT, DISS (µg/l as CO)	<2.	ZINC, DISS (µg/l as ZN)	<2.
COPPER, DISS (µg/l as CU)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.
LEAD, DISS (µg/l as PB)	<2.		

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
59.7	23.5	16.2	0.6	0.7	3.8	95.5	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0568

State: Montana
Latitude-Longitude: 48D20'52"N 114D17'27"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: FVGS-B2
Date Sampled: Jun 6, 1995
Time Sampled: 12:10
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 21W 21 DBAC 01
MBMG Site: M:148191
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3085.0 ft
Sustained Yield: 25.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 397.5 ft. rept.
SWL from g.s.: 128.50 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well B2
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	49.5	2.47	Bicarbonate (HCO3)	288.4	4.73
Magnesium (Mg)	19.7	1.62	Carbonate (CO3)		0.00
Sodium (Na)	12.8	0.56	Chloride (Cl)	0.5	0.01
Potassium (K)	0.675	0.02	Sulfate (SO4)	7.5	0.16
Iron (Fe)	0.191	0.01	Nitrate (as N)		0.00
Manganese (Mn)	0.034	0.00	Fluoride (F)	0.14	0.01
Silica (SiO2)	15.0		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		4.68	Total Anions:		4.90

Calculated Dissolved Solid:	248.11	Total Hardness as CaCO3:	204.69
Sum of Diss, Constituent:	394.44	Field Hardness as CaCO3:	
Field conductivity, micromhos:		Total Alkalinity as CaCO3:	236.54
Lab conductivity, micromhos:	456.	Field Alkalinity as CaCO3:	
Field PH:		Ryznar Stability Index:	7.24
Laboratory PH:	7.62	Langlier Saturation Index:	0.19
		Sodium Adsorption Ratio:	0.39

Parameter	Value	Parameter	Value
Field Temp, Air		Field Temp, Water	
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	<2.
BARIUM, DISS (µg/l as BA)	163.0	PHOSPHATE, TO. DISS (mg/l as P)	<0.2
BERYLL, DISS (µg/l as BE)	<2.	SELENIUM, DISS (µg/l as SE)	<1.
BORON, DISS (µg/l as B)	<80.	SILVER, DISS (µg/l as AG)	<1.
BROMIDE, DISS (µg/l as BR)	<50.	STRONTIUM, DISS (µg/l as SR)	104.
CADMIUM, DISS (µg/l as CD)	<2.	TITANIUM, DISS (µg/l as TI)	<10.
CHROMIUM, DISS (µg/l as CR)	<2.	VANADIUM, DISS (µg/l as V)	<5.
COBALT, DISS (µg/l as CO)	<2.	ZINC, DISS (µg/l as ZN)	<2.
COPPER, DISS (µg/l as CU)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.
LEAD, DISS (µg/l as PB)	<2.		

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
53.0	34.7	11.9	0.4	0.3	3.2	96.5	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0567

State: Montana
Latitude-Longitude: 48D20'51"N 114D19'34"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: FVGS-B3
Date Sampled: Jun 6, 1995
Time Sampled:
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 21W 21 BCAC 01
MBMG Site: M:148192
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3080.0 ft
Sustained Yield: 25.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 557 ft. rept.
SWL from g.s.: 144.56 ft. meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type: 3/8" x 1/2" holes
Perforation Interval: 551.0 to 555.0 ft.

Sampling Site: FVGS Monitoring Well B3
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	59.1	2.95	Bicarbonate (HCO3)	333.3	5.46
Magnesium (Mg)	23.9	1.97	Carbonate (CO3)		0.00
Sodium (Na)	12.3	0.54	Chloride (Cl)	0.5	0.01
Potassium (K)	0.835	0.02	Sulfate (SO4)	5.0	0.10
Iron (Fe)	0.45	0.02	Nitrate (as N)		0.00
Manganese (Mn)	0.162	0.01	Fluoride (F)	0.17	0.01
Silica (SiO2)	15.3		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		5.50	Total Anions:		5.59

Calculated Dissolved Solid:	281.90	Total Hardness as CaCO3:	245.95
Sum of Diss, Constituent:	451.02	Field Hardness as CaCO3:	
Field conductivity, micromhos:		Total Alkalinity as CaCO3:	273.36
Lab conductivity, micromhos:	497.	Field Alkalinity as CaCO3:	
Field PH:		Ryznar Stability Index:	6.81
Laboratory PH:	7.77	Langlier Saturation Index:	0.48
		Sodium Adsorption Ratio:	0.34

Parameter	Value	Parameter	Value
Field Temp, Air		Field Temp, Water	
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	<2.
BARIUM, DISS (µg/l as BA)	210.4	PHOSPHATE, TO. DISS (mg/l as P)	<0.2
BERYLL, DISS (µg/l as BE)	<2.	SELENIUM, DISS (µg/l as SE)	<2.
BORON, DISS (µg/l as B)	<80.	SILVER, DISS (µg/l as AG)	<1.
BROMIDE, DISS (µg/l as BR)	<50.	STRONTIUM, DISS (µg/l as SR)	134.
CADMIUM, DISS (µg/l as CD)	<2.	TITANIUM, DISS (µg/l as TI)	<10.
CHROMIUM, DISS (µg/l as CR)	<2.	VANADIUM, DISS (µg/l as V)	<5.
COBALT, DISS (µg/l as CO)	<2.	ZINC, DISS (µg/l as ZN)	<2.
COPPER, DISS (µg/l as CU)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.
LEAD, DISS (µg/l as PB)	<2.		

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
53.9	35.9	9.8	0.4	0.3	1.9	97.9	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0566

State: Montana
Latitude-Longitude: 48D19'18"N 114D20'43"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 100UDFD
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: FVGS-C
Date Sampled: Jun 5, 1995
Time Sampled: 19:17
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 22W 36 BDCB 01
MBMG Site: M:148193
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 3170.0 ft
Sustained Yield: 20.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 437.5 ft. rept.
SWL from g.s.: 238.25 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well C
Geologic Source: Cenozoic valley fill undifferentiated

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	44.5	2.22	Bicarbonate (HCO ₃)	256.2	4.20
Magnesium (Mg)	14.6	1.20	Carbonate (CO ₃)		0.00
Sodium (Na)	21.2	0.92	Chloride (Cl)	2.0	0.06
Potassium (K)	0.9	0.02	Sulfate (SO ₄)	5.0	0.10
Iron (Fe)	0.573	0.03	Nitrate (as N)		0.00
Manganese (Mn)	0.033	0.00	Fluoride (F)	0.52	0.03
Silica (SiO ₂)	13.5		OrthoPhosphate (as P)	<0.1	0.00
Total Cations:		4.40	Total Anions:		4.39

Calculated Dissolved Solid: 229.04
Sum of Diss, Constituent: 359.04
Field conductivity, micromhos:
Lab conductivity, micromhos: 420.
Field PH:
Laboratory PH: 7.78

Total Hardness as CaCO₃: 171.21
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 210.13
Field Alkalinity as CaCO₃:
Ryznar Stability Index: 7.28
Langlier Saturation Index: 0.25
Sodium Adsorption Ratio: 0.71

Parameter	Value	Parameter	Value
Field Temp, Air	20.0E C	Field Temp, Water	
ALUMINUM, DISS (µg/l as AL)	<30.	LITHIUM, DISS (µg/l as LI)	<6.
ANTIMONY, DISS (µg/l as SB)	<2.	MOLYBDENUM, DISS (µg/l as MO)	<10.
ARSENIC, DISS (µg/l as AS)	<1.	NICKEL, DISS (µg/l as NI)	<2.
BARIUM, DISS (µg/l as BA)	124.3	PHOSPHATE, TOTAL DISS (mg/l as P)	
BERYLL, DISS (µg/l as BE)	<2.	SELENIUM, DISS (µg/l as SE)	<1.
BORON, DISS (µg/l as B)	<80.	SILVER, DISS (µg/l as AG)	<1.
BROMIDE, DISS (µg/l as BR)	<50.	STRONTIUM, DISS (µg/l as SR)	81.
CADMIUM, DISS (µg/l as CD)	<2.	TITANIUM, DISS (µg/l as TI)	<10.
CHROMIUM, DISS (µg/l as CR)	<2.	VANADIUM, DISS (µg/l as V)	<5.
COBALT, DISS (µg/l as CO)	<2.	ZINC, DISS (µg/l as ZN)	10.5
COPPER, DISS (µg/l as CU)	<2.	ZIRCONIUM, DISS (µg/l as ZR)	<20.
LEAD, DISS (µg/l as PB)	<2.		

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
50.9	27.5	21.1	0.5	1.3	2.4	96.3	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 95Q0569

State: Montana
Latitude-Longitude: 48D19'33"N 114D22'37"W
Topographic Map: Rhodes 7 1/2'
Geologic Source: 400BELT
Drainage Basin: PJ
Agency + Sampler: DNRC*RAN
Bottle number: FVGS-D
Date Sampled: Jun 5, 1995
Time Sampled: 16:50
Lab + Analyst: MBMG*TSH
Date Complete: Jul 14, 1995
Sample Handling: 2100
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Monitoring

County: Flathead
Site Location: 30N 22W 34 AABC 01
MBMG Site: M:148194
Project Id: GWAAMON
Station Id:
Sample Source: Well
Land Surface Altitude: 2981.0 ft
Sustained Yield: 15.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 377.5 ft. rept.
SWL from g.s.: -0.50 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: FVGS Monitoring Well D
Geologic Source: Belt SuperGroup

	mg/l	meq/l
Calcium (Ca)	47.8	2.39
Magnesium (Mg)	18.6	1.53
Sodium (Na)	15.3	0.67
Potassium (K)	1.9	0.05
Iron (Fe)	<0.003	0.00
Manganese (Mn)	0.333	0.01
Silica (SiO2)	17.7	
Total Cations:		4.65

	mg/l	meq/l
Bicarbonate (HCO3)	277.2	4.54
Carbonate (CO3)		0.00
Chloride (Cl)	0.5	0.01
Sulfate (SO4)	10.0	0.21
Nitrate (as N)		0.00
Fluoride (F)	0.26	0.01
OrthoPhosphate (as P)	<0.1	0.00
Total Anions:		4.78

Calculated Dissolved Solid: 248.95
Sum of Diss, Constituent: 389.60
Field conductivity, micromhos:
Lab conductivity, micromhos: 437.
Field PH:
Laboratory PH: 7.84

Total Hardness as CaCO3: 195.91
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 227.35
Field Alkalinity as CaCO3:
Ryznar Stability Index: 7.09
Langlier Saturation Index: 0.38
Sodium Adsorption Ratio: 0.48

Parameter Value
Field Temp, Air

ALUMINUM, DISS (µg/l as AL)	<30.
ANTIMONY, DISS (µg/l as SB)	<2.
ARSENIC, DISS (µg/l as AS)	2.6
BARIUM, DISS (µg/l as BA)	420.5
BERYLL, DISS (µg/l as BE)	<2.
BORON, DISS (µg/l as B)	<80.
BROMIDE, DISS (µg/l as BR)	<50.
CADMIUM, DISS (µg/l as CD)	<2.
CHROMIUM, DISS (µg/l as CR)	<2.
COBALT, DISS (µg/l as CO)	<2.
COPPER, DISS (µg/l as CU)	<2.
LEAD, DISS (µg/l as PB)	<2.

Parameter Value
Field Temp, Water

LITHIUM, DISS (µg/l as LI)	<6.
MOLYBDENUM, DISS (µg/l as MO)	<10.
NICKEL, DISS (µg/l as NI)	<2.
PHOSPHATE, TO. DISS (mg/l as P)	<0.2
SELENIUM, DISS (µg/l as SE)	<1.
SILVER, DISS (µg/l as AG)	<1.
STRONTIUM, DISS (µg/l as SR)	183.
TITANIUM, DISS (µg/l as TI)	<10.
VANADIUM, DISS (µg/l as V)	<5.
ZINC, DISS (µg/l as ZN)	8.5
ZIRCONIUM, DISS (µg/l as ZR)	<20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
51.5	33.1	14.4	1.0	0.3	4.4	95.3	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 83Q0280

State: Montana
Latitude-Longitude: 48D18'45"N 114D14'22"W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 111ALVM
Drainage Basin: PJ
Agency + Sampler: MBMG*RAN
Bottle number: EG 1
Date Sampled: May 24, 1983
Time Sampled: 09:30
Lab + Analyst: MBMG*FNA
Date Complete: Sep 28, 1983
Sample Handling:
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 21W 36 CCCC 01
MBMG Site: M:006618
Project Id:
Station Id: 481845114142201
Sample Source: Well
Land Surface Altitude: 2465.0 ft
Sustained Yield:
Yield Meas Method:
Total Depth of Well: 17.9 ft. rept.
SWL from g.s.: 8.02 ft meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site:
Geologic Source: Alluvium (Quaternary)

	mg/l	meq/l
Calcium (Ca)	38.1	1.90
Magnesium (Mg)	8.6	0.71
Sodium (Na)	1.4	0.06
Potassium (K)	0.2	0.01
Iron (Fe)	<0.002	0.00
Manganese (Mn)	<0.001	0.00
Silica (SiO ₂)	5.3	
Total Cations:		2.68

	mg/l	meq/l
Bicarbonate (HCO ₃)	152.3	2.50
Carbonate (CO ₃)	0.00	0.00
Chloride (Cl)	1.40	0.04
Sulfate (SO ₄)	4.70	0.10
Nitrate (as N)	1.22	0.09
Fluoride (F)	0.08	0.00
OrthoPhosphate (as P)	0.04	0.00
Total Anions:		2.72

Calculated Dissolved Solid: 136.03
Sum of Diss, Constituent: 213.31
Field conductivity, micromhos:
Lab conductivity, micromhos: 249.40
Field PH:
Laboratory PH: 8.05

Total Hardness as CaCO₃: 130.53
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 124.91
Field Alkalinity as CaCO₃:
Ryznar Stability Index: 7.59
Langlier Saturation Index: 0.23
Sodium Adsorption Ratio: 0.05

Parameter Value
Field Temp, Air

ALUMINUM, DISS (µg/l as AL) <30.
AMMONIA, TOTAL (mg/l as N) 0.05
BORON, DISS (µg/l as B) 20.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <40.
LITHIUM, DISS (µg/l as LI) <2.
MOLYBDENUM, DISS (µg/l as MO) <20.

Parameter Value
Field Temp, Water

NICKEL, DISS (µg/l as NI) <10.
PHOSPHATE, TOTAL DISS (mg/l as P) 0.029
PHOSPHORUS, TOTAL (mg/l as P) 0.024
SILVER, DISS (µg/l as AG) <2.
STRONTIUM, DISS (µg/l as SR) 57.
TITANIUM, DISS (µg/l as TI) 5.
VANADIUM, DISS (µg/l as V) <1.
ZINC, DISS (µg/l as ZN) 5.
ZIRCONIUM, DISS (µg/l as ZR) <4.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
71.1	26.4	2.3	0.2	1.5	3.7	94.8	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 97Q0295

State: Montana
Latitude-Longitude: 48D18'10"N 114D24'29"W
Topographic Map: Rhodes 7 1/2'
Geologic Source: 1120TSH
Drainage Basin: PJ
Agency + Sampler: MBMG*CAC
Bottle number: 84490
Date Sampled: Sep 8, 1996
Time Sampled: 13:10
Lab + Analyst: MBMG*TSH
Date Complete: Feb 18, 1997
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 29N 22W 04 CADC 01
MBMG Site: M:084490
Project Id: GWCP02
Station Id:
Sample Source: Well
Land Surface Altitude: 3099.0 ft.
Sustained Yield: 8.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 88 ft. rept.
SWL from g.s.: 47.52 ft.
Casing Diameter: 8.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: Mitchell, Lonnie
Geologic Source: Glacial outwash (Pleistocene)

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	60.7	3.03	Bicarbonate (HCO ₃)	301.3	4.94
Magnesium (Mg)	28.6	2.35	Carbonate (CO ₃)		0.00
Sodium (Na)	6.1	0.27	Chloride (Cl)	3.1	0.09
Potassium (K)	2.3	0.06	Sulfate (SO ₄)	27.3	0.57
Iron (Fe)	0.004	0.00	Nitrate (as N)	2.0 P	0.14
Manganese (Mn)	<0.002	0.00	Fluoride (F)	<1.	0.00
Silica (SiO ₂)	17.1		OrthoPhosphate (as P)		0.00
Total Cations:		5.71	Total Anions:		5.74

Calculated Dissolved Solid: 295.67
Sum of Diss, Constituent: 488.55
Field conductivity, micromhos: 484.
Lab conductivity, micromhos: 480.
Field PH: 7.1
Laboratory PH: 7.7

Total Hardness as CaCO₃: 269.29
Field Hardness as CaCO₃:
Total Alkalinity as CaCO₃: 247.12
Field Alkalinity as CaCO₃: 214.
Ryznar Stability Index: 6.95
Langlier Saturation Index: 0.38
Sodium Adsorption Ratio: 0.16

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 9.5E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) 1.2
BARIUM, DISS (µg/l as BA) <10.
BERYLL, DISS (µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <100.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 4.4
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) <6.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) 4.3
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 130.
THALLIUM, DISS (µg/l as TL) <5.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 41.2
ZIRCONIUM, DISS (µg/l as ZR) 22.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO ₄	HCO ₃	CO ₃
53.1	41.2	4.7	1.0	1.6	10.2	88.3	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 94Q0953

State: Montana
Latitude-Longitude: 48D20'56"N 114D17'29"W
Topographic Map: Rose Crossing 7 1/2'
Geologic Source: 112OTSH
Drainage Basin: PJ
Agency + Sampler: MBMG*LAR
Bottle number: M:86214
Date Sampled: Apr 20, 1994
Time Sampled: 16:55
Lab + Analyst: MBMG*GAL
Date Complete: Jun 9, 1994
Sample Handling: 312
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 21W 21 BCCC
MBMG Site: M:086214
Project Id:
Station Id:
Sample Source: Well
Land Surface Altitude: 3240.0 ft.
Sustained Yield:
Yield Meas Method:
Total Depth of Well: 390.0 ft. rept.
SWL from g.s.:
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type: 6" x 1/4"
Perforation Interval: 365.0 to 385.0 ft.

Sampling Site: Brooks, Bruce
Geologic Source: Glacial outwash (Pleistocene)

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	60.5	3.02	Bicarbonate (HCO3)	375.	6.15
Magnesium (Mg)	32.6	2.68	Carbonate (CO3)		0.00
Sodium (Na)	21.0	0.91	Chloride (Cl)	3.0	0.08
Potassium (K)	1.6	0.04	Sulfate (SO4)	14.9	0.31
Iron (Fe)	0.021	0.00	Nitrate (as N)	0.18	0.01
Manganese (Mn)	<0.002	0.00	Fluoride (F)	0.13	0.01
Silica (SiO2)	17.7		OrthoPhosphate (as P)	<0.025	0.00
Total Cations:		6.67	Total Anions:		6.56

Calculated Dissolved Solid: 336.59
Sum of Diss, Constituent: 526.86
Field conductivity, micromhos: 575.
Lab conductivity, micromhos: 586.
Field PH: 7.31
Laboratory PH: 7.63

Total Hardness as CaCO3: 285.25
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 307.56
Field Alkalinity as CaCO3:
Ryznar Stability Index: 6.83
Langlier Saturation Index: 0.40
Sodium Adsorption Ratio: 0.54

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 9.5 E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 241.
BERYLL, DISS ((µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <50.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 3.8
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) <2.
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) 12.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) <2.
NITRITE, TOTAL (mg/l as N) <0.1
PHOSPHATE, TO. DISS (µg/l as P) <0.2
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 159.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 232.
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
45.4	40.3	13.7	0.6	1.3	4.7	94.0	0.0

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MONTANA 59701 (406) 496-4156

WATER QUALITY ANALYSIS
Lab No.: 97Q0195

State: Montana
Latitude-Longitude: 48D20'35"N 114D14'43"W
Topographic Map: Columbia Falls South 7 1/2'
Geologic Source: 112OTSH
Drainage Basin: PJ
Agency + Sampler: MBMG*JR
Bottle number: 127372
Date Sampled: Aug 9, 1996
Time Sampled: 11:40
Lab + Analyst: MBMG*TSH
Date Complete: Oct 9, 1996
Sample Handling: 4220
Method Sampled: Pumped
Procedure Type: Dissolved
Water Use: Domestic

County: Flathead
Site Location: 30N 21W 23 DDCB 01
MBMG Site: M:127372
Project Id: GWCP02
Station Id:
Sample Source: Well
Land Surface Altitude: 2985.0 ft.
Sustained Yield: 6.0 gpm
Yield Meas Method: bucket and stopwatch
Total Depth of Well: 26 ft. rept.
SWL from g.s.: 12.22 ft. meas.
Casing Diameter: 6.0 in.
Casing Type: steel
Completion Type:
Perforation Interval:

Sampling Site: Larson, Kevin C.
Geologic Source: Glacial outwash (Pleistocene)

	mg/l	meq/l		mg/l	meq/l
Calcium (Ca)	66.	3.29	Bicarbonate (HCO3)	277.2	4.54
Magnesium (Mg)	18.6	1.53	Carbonate (CO3)		0.00
Sodium (Na)	3.0	0.13	Chloride (Cl)	6.0	0.17
Potassium (K)	1.6	0.04	Sulfate (SO4)	4.7	0.10
Iron (Fe)	0.012	0.00	Nitrate (as N)	2.7 P	0.19
Manganese (Mn)	<0.002	0.00	Fluoride (F)	<1.	0.00
Silica (SiO2)	13.2		OrthoPhosphate (as P)		0.00
Total Cations:		5.00	Total Anions:		5.00

Calculated Dissolved Solid: 252.40
Sum of Diss, Constituent: 393.04
Field conductivity, micromhos: 454.
Lab conductivity, micromhos: 464.
Field PH: 7.4
Laboratory PH: 7.7

Total Hardness as CaCO3: 241.36
Field Hardness as CaCO3:
Total Alkalinity as CaCO3: 227.35
Field Alkalinity as CaCO3: 219.
Ryznar Stability Index: 6.95
Langlier Saturation Index: 0.38
Sodium Adsorption Ratio: 0.08

Parameter Value
Field Temp, Air

Parameter Value
Field Temp, Water 15.0 E C

ALUMINUM, DISS (µg/l as AL) <30.
ANTIMONY, DISS (µg/l as SB) <2.
ARSENIC, DISS (µg/l as AS) <1.
BARIUM, DISS (µg/l as BA) 152.6
BERYLL, DISS ((µg/l as BE) <2.
BORON, DISS (µg/l as B) <30.
BROMIDE, DISS (µg/l as BR) <100.
CADMIUM, DISS (µg/l as CD) <2.
CHROMIUM, DISS (µg/l as CR) 8.2
COBALT, DISS (µg/l as CO) <2.
COPPER, DISS (µg/l as CU) 2.2
LEAD, DISS (µg/l as PB) <2.

LITHIUM, DISS (µg/l as LI) <6.
MOLYBDENUM, DISS (µg/l as MO) <10.
NICKEL, DISS (µg/l as NI) 7.1
SELENIUM, DISS (µg/l as SE) <1.
SILVER, DISS (µg/l as AG) <1.
STRONTIUM, DISS (µg/l as SR) 64.
THALLIUM, DISS (µg/l as TL) <5.
TITANIUM, DISS (µg/l as TI) <10.
VANADIUM, DISS (µg/l as V) <5.
ZINC, DISS (µg/l as ZN) 30.6
ZIRCONIUM, DISS (µg/l as ZR) <20.

Explanation: mg/l = milligrams per liter; µg/l = micrograms per liter; meq/l = milliequivalents per liter; ft = feet.

Percent Meq/L (For Piper Plot)							
Ca	Mg	Na	K	Cl	SO4	HCO3	CO3
65.9	30.6	2.6	0.8	3.5	2.0	94.4	0.0

Persons with disabilities who need an alternative, accessible format of this document should contact:

Montana Department of Natural Resources and Conservation
Water Resources Division
48 North Last Chance Gulch
P.O. Box 201601
Helena, MT 59620-1601
Phone: (406) 444-6603/Fax: (406) 444-0533

Montana Department of Natural Resources and Conservation
Water Resources Division
48 North Last Chance Gulch
P.O. Box 201601
Helena, Montana 59620-1601

Montana Bureau of Mines and Geology
Publications and Sales
Montana Tech of The University of Montana
1300 West Park Street
Butte, Montana 59701-8997